Medical Life

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WITH SUPPLEMENT.

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ELECTRIC CURRENT.

DR. J. S. TOWNLEY (Crickhowell) asks how many Léclanche cells would be needed to pass a current of 5 to 20 milliamperes through a 12 st. man from the mastoids to the hands, and what such a battery with proper resistance would cost approximately?

*** Approximately thirty cells. A resistance would not be wanted, but a collector switch would be required, so as to be able to switch in (say) at twenty cells and afterwards to thirty. The cells cost 2s. 6d. each. A collector switch on the board would have to be specially made, and 30s. should be allowed for that. A better arrangement would be a self-contained battery of dry cells—generally forty cells—in a box, with a collector switch all mounted up together. This gives a slower and better regulation, and is a recognized piece of apparatus in electro-medical catalogues. The cost is about £9; this is higher than the other arrangement, but it has the advantage of being a single unit.

CHRONIC ULCERS OF MUCOUS MEMBRANES.

DR. C. E. PRATT (Bexley Heath) writes, in answer to "A. F.'s" question (August 28th, p. 407) as to the treatment of chronic ulcers of mucous membranes, to recommend a course of collosol manganese and small doses of thyroid. Of the former he advises ɱxv three times a day in water, gradually increasing to 1 drachm; of the thyroid a tablet of 1/2 or 1 grain.

ASTHMA AND BRONCHITIS.

"GENERAL PRACTITIONER" writes in reply to "P.'s" query regarding chronic asthma and bronchitis: I prefer to relieve the bronchitic element first with the mixture recommended, I believe, by Sir R. Douglas Powell: Ammon. chlor. gr. x, Potass. bicarb. gr. xv, Liq. picis aromat. (Bell) ʒss, Ext. glycyrrh. liq. ɱxx, Tinct. cardam. co. ʒss, Aq. ad ʒss; in water every four hours. The asthmatic element, provided no immediate cause can be found, is relieved by hypodermic injections of pituitary extract and adrenaline. The administration of 1 c.cm. of pituitary extract and 0.5 c.cm. of adrenaline 1 in 1,000 gives in nearly all acute attacks almost instant relief, and I find that a course of six injections at intervals of five days is followed by a period of, usually, several months free from attacks, and with breathing comfortable. In the case of a woman aged 56, who had suffered fairly continuously for several years, there has been no return of asthma for five years, save once, three years ago, when the attack was immediately stopped after one injection. The combination of pituitary extract and adrenaline is that usually supplied in ampoules by manufacturing chemists.

INCOME TAX.

"J. E. F." says: I buy a practice for £700 and sell it in six months for £500; the profits for that time are £200; previously they averaged £500 a year, but were decreasing. On what sum am I liable for tax for that six months?

*** On £200—but it will be necessary to make special application for the reduction of the assessment for the six months to that figure, on the ground that the profits fell off subsequent to the succession from some specific cause. The £200 lost on purchase and sale of the practice represents a loss of capital and not an expense of working the practice.

LETTERS, NOTES, ETC.

ACUTE PULMONARY OEDEMA.

DR. F. B. JULIAN (Liverpool) writes: In the BRITISH MEDICAL JOURNAL of June 19th (p. 1033) reference is made to contributions by myself and others, on the subject of acute pulmonary oedema, in the JOURNAL of April 17th. As I have also received inquiries by letter, perhaps you will allow me space in which to make reply. One of your correspondents considers my action in administering antimonium tartrate as open to serious criticism. Had I given the antimony in the usual form and dosage I would agree. The phrase "guided by the principle of similars," however, should have made it clear that the antimony was not administered in the usual dosage, for this principle—otherwise known as the homoeopathic principle, and utilized successfully but unconsciously by thousands of medical men who would refuse to admit its validity—involves a close correspondence between the pharmacological effects of the drug used and the symptomatology of the patient, and consequently demands attenuation of the dose. The dose administered by me in the case recorded was attenuated to a degree which rendered it infinitesimal. The result was, however, as noted, both effective and dramatic.

VENEREAL DISEASE PROPHYLAXIS.

DR. M. W. BROWDY (London, W.) writes: As reported in the BRITISH MEDICAL JOURNAL (August 7th), the Society for the Prevention of Venereal Disease at its annual meeting passed a resolution to urge the Government to amend the Venereal Diseases Act, 1917, so as to permit the sale by chemists of approved disinfectants. Without entering into the problem of prophylaxis, I would draw attention to the evidence now accumulating of primary syphilis retarded by prophylactic treatment and the consequent danger of neuro-syphilis. This alone should make one pause before recommending such a measure. At the same meeting attention was drawn to the remarkable fall in the incidence of venereal disease during the last four years, attributable to the prevention, diagnosis, treatment, and anti-venereal disease propaganda. Might I ask if this is so? Does it not merely indicate a gradual clearing of those infected during the war period? The only comparison lies between new infections, pre-war and present day; and if this comparison were made it would probably be found that the removal of the only deterrents to promiscuous sexual intercourse—namely, fear and cost of treatment—has produced very little change in the incidence.

MINER'S NYSTAGMUS.

DR. T. L. ASHFORTH (Doncaster) writes: After twenty-five years' experience in Scotland (Lanarkshire), Durham, and South Yorkshire coalfields I agree with Mr. A. S. Percival (July 31st, p. 224) that the light conditions have nothing to do with miner's nystagmus, nor have errors of refraction. I have read the Commission's Report, and I am afraid many practitioners with vast colliery experience will only smile at it. If one wants a reliable statement of affairs, bring the matter up at a meeting of the British Medical Association or a special conference or conferences at certain centres and invite everybody interested to attend.

TUBERCULOSIS AND THE STATE.

DR. A. J. BROCK (North Queensferry, N.B.) writes: I have read and enjoyed your summary in the BRITISH MEDICAL JOURNAL of August 21st (p. 349). The subject is, to say the least of it, complex. Might I suggest that, in order to distinguish the wood from the trees, a useful beginning might be made if we all definitely realized the following principle: that there are two chief kinds of tuberculosis—one pathological and the other physiological. Some expense might then be saved if we stopped attempting to cure cases belonging to the latter category.

THE REVISION OF THE "BRITISH PHARMACOPOEIA."

DR. GEORGE W. CHEATER (Woodford Green, N.22) writes to suggest that on the Revision Committee for the proposed new edition of the *British Pharmacopoeia* there should be at least one member who, previous to taking his medical degrees, has had experience as a qualified pharmacist. Such a member, he thinks, would be able, from his knowledge of both professions, not only to weigh accurately such evidence as may be given, but also could see both the medical and pharmaceutical points of view, for he is convinced that in the compilation of previous *B.P.*'s the medical men have not always seen eye to eye with the pharmacists and vice versa. For instance, there are several preparations which are prescribed with extreme rarity by the medical profession and, from the pharmaceutical aspect, are anything but elegant, such as mist. guaiaci and mist. ferri co. Again the number of ingredients of confectio sennae might be "pruned" down by half without any detriment to its medicinal value. This point, he is sure, will be endorsed by anyone who has had to make it by hand in his apprenticeship days.

GOLDFISH AND MOSQUITOS.

A CORRESPONDENT, jealous of the space of the JOURNAL, asks us why room was found for a short review of a book on how to keep goldfish, published on August 28th (p. 390). The answer is that goldfish eat mosquito larvae. This well known fact may be illustrated by a true story. Not long ago a teacher about to give a lecture on malaria wanted to show his class some larvae, but they were not to be obtained from the animal dealers. In despair he offered a penny apiece. A colleague who, ever since he had made himself a small ornamental pond in his garden, had been plagued by mosquitos, thought he saw a way of turning a few honest pennies. When he got to the pond side he could find no larvae, nor any mosquitos. The explanation, which satisfied him, was that not long before he had put into the pond a few goldfish, and they had swept it clear of larvae.

FORD CARS.

WITH *The Original Book of the Ford* no driver of that estimable vehicle need fear any trouble. Mr. R. T. Nicholson's book is now in its tenth edition, so that students of the work must be numerous. Every detail of the car, and every possible disease or disorder, is described. Our only fear is that the owner who follows out all the directions given in the book may find that he has little time left for any other occupation than nursing his Ford.

ERRATUM.

WE regret an error in our issue of August 28th (p. 376). The name of the President of the Section of Public Health should have been given as Dr. Philip Boobbyer, instead of Dr. William J. Howarth, who was prevented by illness from being present at the Nottingham meeting.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *148*.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

Professor J. SHOLTO C. DOUGLAS, M.D., President.

PRESIDENT'S OPENING REMARKS.

THE President, in opening the proceedings of the Section, paid a warm tribute to the memory of Sir William Leishman, who, but for his much lamented death, would have presided over the meetings of the Section. Sir William Leishman, said Professor Douglas, was one of the small band who worked out the preventive inoculation against the enteric disorders, with the result obtained in the recent war. The reduction in the case incidence and in the case mortality resulting from these labours was nothing short of miraculous. Leishman's stain had stood the test of time, and was now in such universal use as to have become a standard method in the clinical examination of the blood. Students of tropical medicine would long honour him for his discoveries in connexion with kala-azar, and here, too, his name will be handed on to posterity in the word "leishmania." He had devoted his life to the Royal Army Medical Service, and it was while serving it that he carried on his wonderful researches and stimulated others to a realization of the value of sound pathology. As professor of pathology in the Army Medical Department, and subsequently as director-general, Sir William Leishman had done a great work and endeared himself to those who came into contact with him. His death had been an incalculable loss to the Pathological Section of the British Medical Association. They owed him much for the organization of this meeting, which he had left practically completed.

DISCUSSION ON THE RELATION OF STREPTOCOCCI TO SCARLET FEVER AND ITS COMPLICATIONS.

OPENING PAPERS.

I.—R. A. O'BRIEN, C.B.E., M.D.MELB.,

Wellcome Physiological Research Laboratories, Beckenham, Kent.

THE title of our discussion assumes that a relationship exists between streptococci and scarlet fever. It may be of service to sum up the grounds for the acceptance of this assumption and for our personal belief that streptococci are the cause of scarlet fever. Haemolytic streptococci have been found practically always present in true scarlet fever. Clinical scarlet fever has been produced (according to the statements of the Drs. Dick) by the swabbing of cultures of these streptococci on to the tonsils of susceptible people; a culture filtrate or "toxin" prepared from the streptococci gives reactions which are specifically related to scarlet fever, for practically all patients, in the earliest stage of the disease, give a positive response to the intracutaneous injection of the toxin, and during convalescence, when their immunity is developed, the great majority of patients give a negative response; the serum of animals immunized with these streptococci or their toxins, when injected intracutaneously, produces the specific blanching of a scarlet fever rash; finally, the serum of immunized animals has what, in the opinion of medical men with long training in the observation and treatment of infectious fevers, amounts to a specific curative action. This "confession of faith" will cause a certain repetition in the logical consideration of our subject, but it has appeared advisable to define at the outset what is believed to be the ground already won.

When the subject of our discussion was chosen, some months ago, it was fervently hoped that before this meeting a test applicable in the laboratory for the measurement of scarlet fever toxin and antitoxin would have been discovered, and that with such a test we should have been able to clear up many uncertainties. That hope proved vain, for no satisfactory test has yet been found. In consequence we shall be obliged to some extent rather to formulate questions than to add much to our common stock of knowledge.

We are to inquire, What is the relation of the *Streptococcus haemolyticus* to scarlet fever and its complications? There seems little doubt that haemolytic streptococci are closely related to scarlet fever, and we are justified, for the purpose of discussion, in postulating a "*Streptococcus scarlatinae*" (or possibly a group of streptococci) which causes infectious scarlet fever. But as soon as we seek to define this *S. scarlatinae* our difficulties begin. If we isolate from the throat of a patient suffering from scarlet fever a streptococcus which we think may be the characteristic organism, we must determine that it is haemolytic, and that on the ordinary media it grows like the haemolytic streptococci obtained from any other pathological conditions; it has, unfortunately, no characteristic of growth sufficiently distinctive to help us materially in identification. Its fermentation reactions must agree with those of *Streptococcus pyogenes*; lactose, salicin, and saccharose must be fermented, but not raffinose or inulin; mannite is fermented by some strains and not by others, yet in both cases we must accept these strains as true *Streptococcus scarlatinae*. (In passing we may note that this character appears to be not very deeply implanted, for a strain of the mannite-fermenting variety, which Dr. Dick kindly sent us, has in our laboratory, in the course of some months, apparently lost its power to ferment mannite.)

The organism, when grown in ordinary peptone or tryptic digest broth, must produce in the filtrate a "toxin" having the same property as that described by G. F. and G. H. Dick. It must, in a reasonably high dilution, give a positive "Dick" reaction in almost all cases of scarlet fever tested during the first two or three days of the disease; it must, when injected into positive Dick reactors in a quantity containing about 1,000 times the minimal skin reacting dose, produce in the majority of instances "miniature non-infectious scarlet fever" or the "scarlatinoid syndrome"—that is, sore throat, fever, vomiting, and characteristic rash; it must be neutralized by the specific antiserum, so that when a mixture of toxin and antitoxin is injected intradermally into a positive reactor to the Dick test, no reaction is produced. Before our scientific scepticism is satisfied we may ask more—that is, that our living culture will, when applied to the throat of a positive Dick reactor, produce unmistakable scarlet fever. It is probable that only three strains in existence have had their authenticity tested thus far—the mannite-fermenting and also the non-fermenting strains of the Dicks, and one strain in Park's laboratory, which was accidentally sucked into the mouth of a worker and apparently caused typical scarlet fever.

We may inhumanly still press our demands and say that we are not yet satisfied, for natural scarlet fever is infectious, and we have yet to prove that the disease we have produced will infect susceptible contacts as the natural disease does. This test has not been carried out, nor is it probable that our common humanity will ever allow it. It is only the interesting history of swine fever that makes us even contemplate such a demand. Until Dorsett's classic investigation it was everywhere accepted that the *B. suipestifer* was the cause of swine fever, for with the bacillus can be produced a fatal disease clinically resembling swine fever and showing *post mortem* certain characteristic ulcers in the intestine. Dorsett noted that the disease this bacillus produced was not infectious, and it was only when he obtained his "filterable virus" free from bacilli that he was able to produce a disease clinically resembling natural swine fever and also resembling it in its intense infectiousness. The *B. suipestifer* is apparently a "secondary invader" which produces the ulcers, and is so commonly present in pigs in most countries where true swine fever occurs that in the opinion of those charged with the control of animal diseases it is safe to found a diagnosis of swine fever, justifying administrative measures, on the finding of the ulcers really caused by *B. suipestifer*.

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MEMBERS OF THE SENATE, THE MOST PERMANENT INSTITUTION IN THE STATE OF ROME, AND CHIEF AMONG THE FACTORS WHICH GOVERNED ITS HISTORY.

In the earliest period the king was the sole ruler of Rome; he imposed taxes, distributed land, erected buildings, he was the supreme judge with power of life and death over his subjects, he appointed all officials, led his people to war, and was head of all religious institutions. He appointed, to aid him, the Senate or council of elders, consisting of men chosen on account of their experience and assumed prudence and wisdom. At first the king convened this council when it suited his convenience, and it was little more than the ruler's instrument. With time it acquired power and became the chief authority. Other institutions arose and played a part in the government, but for many centuries and especially those in which danger threatened the expanding state—as during the Punic wars—the conduct of affairs lay entirely in the hands of the Senate. In its best days the Senate was composed of men of fine calibre, drawn mostly from patrician families whose members had served the state from generation to generation, but it included also plebeians who had rendered conspicuous public service—from these two sources a high level of capacity was secured. The representations of Senators here reproduced from a monument of the first century B.C. may be looked upon as typical leaders of the Roman people.

DATE: From c. 750 B.C.

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results. If "late septic cases" gave invariably or usually a "Dick-positive" response this would be fairly clear proof that they possessed little or no antitoxin, and one could believe that the antitoxic serum might be useful. Unfortunately, no long series of Dick tests on late septic cases have been published, but apparently these patients more often than not show a negative response to the test. We would not, therefore, expect antitoxic serum to benefit these patients. If further experience were to prove that the giving of purely antitoxic serum to "septic" cases is beneficial we should almost be compelled to believe that the "toxic" mode of attack of the streptococcus is by far the most important and almost the only one—that is, that the toxin causes local damage in the ear or in the tissues, and that in this damaged area the streptococci, which must be circulating in the patient's blood at some stage of his illness, can settle down and produce further damage.

The laboratory evidence is at present against the extreme view that the toxic attack is all-important and the attack by the living streptococcus but of secondary import. The rabbit is almost completely resistant to the toxin of the *Streptococcus scarlatinae*, whether given intracutaneously, subcutaneously, or intravenously, whereas the living culture injected intravenously kills, and, given intracutaneously, causes a large lesion often followed by septicaemia and death.

Summary.

Haemolytic streptococci cause infectious scarlet fever. These streptococci tend to form a group which can be differentiated by agglutination methods from the haemolytic streptococci of erysipelas, septicaemia, puerperal fever, etc. There is some agglutination relationship between the more or less sharply defined scarlet fever group of haemolytic streptococci and the groups associated with other diseases. The streptococci causing the "septic" complications of scarlet fever probably usually belong to the group of scarlet fever haemolytic streptococci.

REFERENCES.

[1] See *Journ. Exper. Med.*, xliii, 1926, Table IV, p. 387. [2] *Journ. of Hygiene*, xxv, 2. [3] *Journ. of Immunol.*, x, 1925, p. 829.

II.—C. C. OKELL, *M.C.*, M.B., M.R.C.P., D.P.H.,
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WITH regard to the validity of the streptococcal theory of scarlet fever there seems little to add to the general statement of the opener of this discussion. It cannot, of course, be maintained that the streptococcus is the cause of scarlet fever with the same certainty that the Klebs-Loeffler bacillus is the cause of diphtheria. At the same time the work of the Dicks and Dochez has shown how profitable a working hypothesis the streptococcal theory of scarlet fever has proved. It would be unwise, however, to overlook the possibility of other agents being involved in the etiology of the disease. All who have worked in this field have met with facts which appear to be discordant with the simple statement of the theory. That this is the usual state of affairs in attacking any new problem is admitted, but it must also be confessed that in this subject the difficulties and discrepancies become more numerous with the progress of observation and experiment.

The solidly established facts are: (1) The Dick test indicates—though by no means with precision—the state of susceptibility or non-susceptibility to the disease. (2) Streptococcal "antitoxin" has a curative value in suitable cases of the disease. There seems little doubt that both the toxigenic and the pyogenic activities of the scarlet fever coccus are responsible for most of the clinical manifestations of the disease, and that the injection of sterile toxin alone can produce a syndrome bearing the closest resemblance to scarlet fever.

With regard to most other aspects of the problem there seems much to be said on both sides. It has been frequently pointed out that one great obstacle to the advance of knowledge on this subject is due to the difficulties in titrating both scarlet fever toxin and antitoxin. To begin with, the only animal which has been conclusively shown to be susceptible to the toxin is the human being, and such progress as has been made is entirely due to experiments on human volunteers. The activity of toxin is estimated from its activity on susceptible persons, but it must be remembered that probably comparatively few people, especially in the older age groups, can be taken as being virgin soil so far as scarlet fever infection is concerned, and still fewer so far as streptococcal infections in general are concerned. This may or may not be the explanation of the difficulty met with in trying to compare the activity of two toxins. One can imagine the uncertainty that would have arisen in connexion with the similar problem in diphtheria had the only experimental animals been men or horses, who have so frequently acquired some degree of immunity to that infection. As it is, the comparison can only be made after a large series of observations and with great caution.

The difficulties of finding the neutralizing power of an antitoxin in terms of a known toxin dose are still greater. One of the difficulties is that reactions due to the serum may be misleading, but even apart from this it has proved very difficult to evaluate either serum or toxin in terms of the only phenomenon which is at present available for the purpose—namely, the delicate skin reaction due to the toxin. The toxin reaction, indeed, appears to be almost entirely a vasomotor effect, and can be easily disturbed by non-specific factors. It tends, moreover, to be an all or nothing phenomenon. It may happen that injections containing very different amounts of toxin produce almost indistinguishable reactions. In the case of diphtheria toxin the size of the reactions bears a definite relation to the amount of toxin used.

Most of those who have experience in titrating streptococcal antitoxin in terms of skin doses of toxin admit that very wide discrepancies may occur even when the greatest pains have been taken to ensure standardized conditions of test. In some cases the neutralizing value of a sample of serum, as determined by different observers in terms of skin doses of toxin, has varied as much as tenfold. Under such conditions it is obviously premature to lay down standards of either toxin or antitoxin. Most of the competent authorities in America seem to be in agreement that such standards as are chosen should be of a purely provisional character.

If accurate standardization is aimed at it is important that the fundamental standard should be that of a serum rather than a toxin. Drs. McCoy and Dyer of the Hygienic Laboratory in Washington have prepared a serum which they propose to issue as a provisional standard, and there seems no reason why this should not be accepted in this country also. It is a serum of apparently high antitoxin content, and will serve as a constant for comparison until more definite standards can be laid down. The method at present customary in America of giving the titre of antitoxin in terms of units is liable to be misleading, and in this country we have not as yet seen any sound reason for adopting it. The present position in regard to the standardization of scarlet fever serum may be summarized as follows: The distinction of good from bad serum depends ultimately on its therapeutic effect. By means of toxin neutralization tests, blanching tests, or the passive immunity method, the therapeutic value of the serum can be predicted, but at the moment anything like close quantitative comparison of serums is impossible. On the evidence available it is not even clear which of the methods customarily used in evaluation is the best. The important thing for the time being is that serum of reasonable clinical efficiency be issued, and that what titration experiments indicate as the effective dosage should be stated.

Before leaving the question of toxin and its titration reference should be made to the methods of test which do not involve the use of human subjects. The *in vitro* methods on the lines of the Ramon test gave no results in our hands. Like Dyer we found that flocculation occurred in mixtures of scarlet fever toxin and antitoxin, but we could establish no numerical relationship between the two. This is confirmed by Dyer's latest and as yet unpublished work. No animal we have tried has reacted at all promisingly to the toxin except the goat. This animal has been used by Kirkbride and Wheeler for the titration of toxin and antitoxin. We have found goats

With regard to septic complications, there seems little doubt that the majority of the organisms causing otitis, septic adenitis, etc., belong to the *Streptococcus scarlatinae* group, for a number of workers (Stevens and Dochez, 1926; J. Smith, 1926; etc.) have isolated strains from such complications which agreed with the Dochez-Dick strains in every test which was applied.

There remain for discussion at least three important questions:

(*a*) Given a haemolytic streptococcus of unknown origin, can we decide quickly and certainly whether it is a *Streptococcus scarlatinae* or not?

(*b*) Are there different types of scarlet fever caused by different strains of the streptococcus, or is there but one clinical scarlet fever caused by serologically differentiable streptococci?

(*c*) Does the *Streptococcus scarlatinae* attack only as a toxigenic organism, or has it another mode of attack which we may call the septic or pyogenic method?

Our best hope of getting answers to questions (*a*) and (*b*) lies at present in the agglutination and intracutaneous tests.

Agglutination.—There seems little doubt, from the investigations of the past few years in which both American and English workers have played an important part, that the agglutination and agglutinin-absorption methods are of service. If one handed to any of these workers two groups of some twelve strains of haemolytic streptococci, one group taken from the throats of scarlet fever patients, the other from patients suffering from erysipelas, puerperal fever, or septicaemia, etc., it is probable that in every such experiment the scarlet fever group would be identified with certainty. But if one wishes to identify individual cultures difficulty arises. Our own limited experience suggests that a small number of individual strains fail to give satisfactory results, and it is interesting to note in the American literature the occasional reservations of the more critical workers that a certain small proportion of strains will not form stable suspensions or do not fall clearly into the scarlet fever agglutination group or subgroups. Stevens and Dochez (1926) stated their position thus:

"Erysipelas strains form a closely related group of haemolytic streptococci. Scarlatina strains form an equally compact group. The two groups are related antigenically, but less closely related than the strains within the groups. These groups are related to pathogenic strains, but less closely than they are related to each other."

Had these authors added that there were apparently subgroups, as indicated by agglutination and absorption reactions, inside the scarlet fever group, etc.,[1] their position would have corresponded almost completely to that of most American workers and of Gordon, Smith, Eagles, and F. Griffith in England.

The answer to our first question is that, unfortunately, we cannot quickly and certainly identify a given haemolytic streptococcus as *Streptococcus scarlatinae*, for though the group is fairly clearly defined serologically, occasional scarlet fever strains fail to agglutinate with the specific scarlet fever serum, and some strains derived from other diseases agglutinate and absorb with the specific serum. The difficulty in dealing with suspected "carriers" is unfortunately obvious.

If we attempt to answer question (*b*) by the agglutination method we cannot give a clear reply. From various published reports (notably that of J. Smith[2]) it seems fairly certain that inside the scarlet fever group of streptococci it is possible by agglutination to define more or less closely several subgroups. The biological significance of these subgroups we cannot at present determine. So far as I know, no worker has suggested that these different subgroups are associated with different varieties of scarlet fever. Our own results in diphtheria, where we can take a group of true virulent *C. diphtheriae* excreting a toxin neutralizable by one specific antitoxin, and proceed by agglutination and absorption methods to differentiate a large number of subgroups, make us disinclined to believe that this serological subgrouping has any pathological significance.

Toxigenic Power.—There remains another method of attempting to answer questions (*a*) and (*b*). The specificity of the intradermic toxin reaction is high, but it is probably not as absolute as it certainly appears to be in connexion with *C. diphtheriae*. If a haemolytic streptococcus which grows normally and is specifically agglutinated by anti-streptococcus agglutinating serum produces a toxin which is neutralized only by scarlet fever antitoxin, the evidence that the organism is a *Streptococcus scarlatinae* becomes almost convincing. Yet in the light of the available evidence it cannot be said that the absence of this toxigenic power is sufficient *absolutely* to exclude a given organism from the scarlet fever group, or that its presence warrants a dogmatic assertion that the organism is undoubtedly the *Streptococcus scarlatinae*.

The idea that there may be varieties in the toxins produced by the group of scarlet fever organisms has suggested itself, and Park[3] has, from his observations on specific neutralization with scarlet fever serum, recently put forward the conception that there may be groups of streptococci which produce toxins not identical but having an antigenic overlap.

Schultz-Charlton Blanching.—This test may carry us a little further. If an antitoxin made by injecting animals with the toxin of a given streptococcus blanches the rash of scarlet fever and not of measles, rubella, enema rashes, etc., there is strong justification for considering the organism as the specific *Streptococcus scarlatinae*. Yet even here we must make a slight reservation, for, though we know that the great majority, some 80 to 95 per cent., of scarlet fever patients, if tested within seventy hours of the appearance of the rash, will show the specific blanching, we cannot be certain that we can produce the phenomenon on 100 per cent. of patients tested. Since scarlet fever antitoxin produced in the horse, or the serum of a patient convalescent after scarlet fever, will "blanch" a very high percentage of scarlet fever rashes, we are justified in considering all strains of *Streptococcus scarlatinae* as toxigenically identical. It is true that few clinicians obtain 100 per cent. of positive blanching results when testing scarlet fever patients, but so far as one can judge from the very meagre observations available, the serum of these "non-blanching" patients, taken during convalescence, will in its turn blanch ordinary scarlet fever rashes, which also blanch with the antitoxin serum produced in the horse. There is here no clear evidence that there are two types of scarlet fever.

Our answer to the second question, then, is that there is probably only one type of clinical scarlet fever, which may be caused by a group of haemolytic streptococci containing subgroups that are differentiable by agglutination methods, but not at present clearly separable by intracutaneous injection of toxin or the Schultz-Charlton method of test. "Puerperal scarlet fever" and "surgical and burns scarlet fever" are puzzling syndromes, and their relation to ordinary infectious scarlet fever is not at present clear. Many authorities consider these attacks as true infectious scarlet fever occurring in patients whose illness may possibly have increased their liability to scarlet fever; others think that such patients develop "scarlet fever"—that is, fever with scarlatiniform rash but with little or no inflammation of the throat—caused by streptococci derived from the vagina or wound, which may not be identical with the ordinary *Streptococcus scarlatinae*; further, that such attacks are not infectious, probably because the cocci are not liable to be spread as droplets in coughing and talking as they are in an ordinary attack of scarlet fever with sore throat. It should be easy, by a careful study of such cases by means of the Dick and Schultz-Charlton reactions, and of the cocci isolated therefrom, to establish clearly what is the relation between these curious attacks and true scarlet fever.

In attempting to answer our third question the available data at present are insufficient to give much help. The large amount of evidence available has convinced practically all observers that scarlet fever antitoxin is a specific curative serum, and that, given early in the disease, its beneficent action approaches that of the specific antitoxin used in the treatment of diphtheria.

In addition, considerable evidence is also available suggesting that the giving of antitoxin early in the disease decreases the liability to complications. Some clinicians state that scarlet fever antitoxin will benefit late septic cases also; most physicians have had no such good

us when we are called upon immediately to determine a *S. scarlatinae*. At the best it takes an expert bacteriologist about three days to make such a determination under favourable conditions. Inspired by the good results obtained by Ramon's flocculation method for determination of the antitoxic titre in diphtheria serum by placing the same in contact with diphtheria toxin on the water-bath, I laboured for several months in applying this highly specific reaction to determination of specific scarlatinal and erysipelas toxin-antitoxin neutralizations, but without any positive results. Until a quicker *in vitro* method is invented than agglutination and absorption, which in themselves are faulty and unreliable, in that they are produced by a number of non-specific strains, we may find the best method available that invented by Dick and Dick—namely, specific neutralization of *S. scarlatinae* toxin by scarlatinal antitoxin in the skin of susceptible individuals.

Varieties of Streptococcus scarlatinae.

Although several groups of *S. scarlatinae* are suggested by agglutination and absorption, yet, antigenically speaking, *S. scarlatinae* forms as compact and closely related a group of organisms as we shall shortly learn is the case with *S. erysipelatis*. Toxigenically we are confronted with the problem of varieties of toxic products of true scarlatinal organisms. My experience has been the same as that of Wheeler and Kirkbride and Park, that one person may give a strongly positive Dick reaction to a toxin produced by one scarlatinal streptococcus and yet give no reaction with a five times stronger toxin of another true scarlatinal streptococcus, and vice versa in other individuals susceptible to one toxin and not to that produced by another strain. Inasmuch as there is only one type of clinical scarlet fever and the specific curative effects of scarlatina antitoxin are unquestionably the same in every case treated early in the disease, is it not possible that the toxigenic power of *S. scarlatinae* presents a variable picture only *in vitro* after the organism has been artifically grown for some time, in, so to speak, unnatural surroundings? Our experience has been the same as that of Dr. O'Brien—that our original mannite-fermenting true scarlatinal strain lost its power to ferment mannite in the course of some months of artificial transplantations. May it not likewise lose its original toxigenic specificity? For practical purposes, then, a polyvalent toxin employed for the Dick test would give more uniform results than those already conflicting data obtained by the use of monovalent toxins.

Schultz-Charlton Phenomenon.

An interesting study has been in progress on the mechanism involved in the production of scarlatinal rash and its neutralization or blanching by means of specific scarlatina antitoxin. By studying microscopically the capillaries in the erythematous area during the height of the rash, we are able to count as many as forty capillary loops in one eye-field, using a magnification of 300 times. Normally only eight to ten loops come into view. When a deeply erythematous area of skin is infiltrated intradermally with 0.1 c.cm. of scarlatina antitoxin, we notice from hour to hour that the capillary loops diminish in diameter and that the flow of blood is retarded, and eventually, when the Schultz-Charlton blanching phenomenon is complete, we are able to discern only from eight to ten normally appearing capillary loops. When the scarlatinal rash is infiltrated with erysipelas antitoxin, diphtheria antitoxin, tetanus antitoxin, pneumococcus serum, or normal horse serum, the capillary picture remains undisturbed, or rather aggravated. When the scarlet fever patient's serum is taken during the first five days of the disease and injected intradermally in Dick-positive individuals, we obtain as a rule a strongly positive Dick reaction. If this serum is mixed with scarlatinal antitoxin or convalescent scarlet fever serum and then injected in susceptible individuals, no skin reaction is obtained. If, now, we take the patient's serum at about the twelfth day of the disease and inject it into the skin of Dick-positive reactors, we obtain no skin reaction; but if the same serum is injected intradermally into scarlet fever rash, we obtain in the course of ten to eighteen hours the blanching phenomenon. There is here a strong justification for considering the antitoxin produced in the patients during the acute attack of scarlet fever identical with the antitoxin produced in laboratory animals by the injection of *S. scarlatinae*.

Specific Therapy.

The rapidly accumulating literature on the subject of specific scarlatinal antitoxin therapy makes it increasingly certain that we are dealing with a highly curative serum. My early observations with Dochez's serum in 1923-24 brought me to the conclusion that adequate doses of scarlatinal antitoxin administered during the first four days of the disease brought about a rapid recovery without septic complications. As Dr. O'Brien has already pointed out, I stated at that time that the antitoxin seemed without avail in the late septic cases, and during the past three years of continuous observation of specifically treated scarlet fever patients I have had no cause to change that early observation. The clinical picture of the late septic cases of scarlet fever resembles in some degree that of the late untreated case of diphtheria, in that it yields irregularly to massive doses of diphtheria antitoxin. It is possible that the toxins are so thoroughly fixed in the tissues that they cannot be neutralized by the administered antitoxin. In summary, then, we may say that the significance of *S. scarlatinae* in its relation to scarlatina is an established fact, which must remain as another milestone along the eternal road of medical progress—a milestone of which our profession should be doubly proud because the labours of two continents steeped in similar traditions and aspirations have made this monument to modern medicine possible.

GENERAL DISCUSSION.

The PRESIDENT asked whether complement fixation was of any avail in recognizing the streptococcus of scarlatina. It was difficult for the general pathologist to get first-hand experience of scarlet fever because cases were removed to special hospitals. These hospitals were so far away that it was quite impossible for the pathologist to pass from his laboratory to the bedside and to follow up his findings by the observation of cases. For this reason the knowledge of the pathology of infectious diseases, and therefore of their treatment, had been delayed. The best plan would be for the hospitals to follow the admirable example set by the Metropolitan Asylums Board and develop their own pathologists. At present the pathology was done by junior medical officers, untrained in this branch of work. This condition of things was most unsatisfactory.

Dr. W. J. TULLOCH (Dundee) said that two points of considerable importance arose out of the papers by Dr. O'Brien and Dr. Okell. The first was that apparently the *S. scarlatinae* was not, from the agglutinogenic point of view, a single definite entity, but was divisible into subgroups. Notwithstanding this it appeared from Dr. O'Brien's paper that all the immunologic varieties of *S. scarlatinae* produced the same toxin. There was here a close analogy with *B. tetani*, which, by the agglutination test, could be divided into several "types," but all those "types" produced the same neurotoxin. Therefore the toxic effect of any tetanus bacillus, no matter what its "type," could be neutralized by the antitoxin to any "type." The same was probably true of the diffusible toxins elaborated by *S. scarlatinae*. Therefore the toxic element in scarlet fever should be counteracted by an antitoxin prepared against any authentic strain of *S. scarlatinae*. There was, however, another aspect of the problem—namely, that the agglutinogenic types might be of importance in relation to infection, and, if this were so, typing by agglutination would assume considerable importance in connexion with prophylaxis. Recent work by Ten Broeck and Bauer suggested that even in tetanus the typing of the bacillus might be of importance in that infection of a non-disease-producing nature with one "type" already existing in an animal precluded an infection capable of producing disease by that same "type" in that animal, although infection and disease production

which reacted to 0.2 c.cm. of very dilute (1 in 4,000) toxin, but here again the numerical difficulty occurred. As much as 80 times the minimum reacting dose produced a reaction of very much the same size as the minimum reacting dose. One goat also, which gave a good reaction intradermically with 0.2 c.cm. in 1 in 1,000 dilution, failed to show the least abnormality when 5 c.cm. of pure toxin was given subcutaneously. If the skin reaction in goats is therefore a true toxin effect it is strange that 25,000 skin doses should produce no effect, general or local, when given subcutaneously. It would be unwise to say that the goat cannot function as a test animal, but until such discrepancies as we have mentioned can be explained away it would be as well to be cautious.

It must not be forgotten that it is one of the most characteristic properties of a true toxin that the toxic effect produced is proportional to the amount of toxin given. Dick toxin, as regards its effect on human beings, falls into line with other toxins. As far as the work of Parish and myself has been concerned this has not been the case with goats or other animals, and we are disposed to look upon such reactions as are produced in these animals by filtrates as due to some form of allergy rather than to a true toxin effect.

Another point to which I wish to refer is of both clinical and immunological importance. The streptococcus plays a dual role in scarlet fever: (1) it produces a toxin, and (2) it may invade tissues like any other pyogenic organism. Uncomplicated scarlet fever appears to be almost purely a toxaemia, which is rapidly combated by the production of streptococcal antitoxin; but the streptococcus can, and often does, take a further role as an invasive organism, producing effects similar to those produced by any other pyogenic streptococcus. The pyogenic function of the streptococcus appears to be more or less separate from the toxaemia function from the immunological and even from the clinical point of view.

The most important fact bearing on this is that the patient who has a pyogenic complication of scarlet fever is "immune" to the toxin—that is, he almost always has a negative Dick reaction. Once pyogenic complications are established antitoxic serum has no effect on them. This dual nature of the streptococcus is paralleled by animal experiments. Mice and rabbits are not susceptible to the streptococcal toxin, but they may be killed with a septicaemia by the scarlet fever coccus. Rabbits may also be given a typical pyogenic infection of the skin with the scarlet fever streptococcus. It is not clear that any amount of scarlet fever antitoxin *per se* can be depended upon to protect against such infections. H. J. Parish, working with me on this point, has been unable to show that serums prepared either against toxin or bacterial bodies are able consistently to prevent the septicaemia of mice or the pyogenic skin reactions in rabbits. On the other hand, rabbits may be killed with 5 c.cm. of a young broth culture of the scarlet fever streptococcus, given intravenously. Scarlet fever antitoxin which was prepared entirely by immunization with sterile filtrates (toxin) when given five hours beforehand will prevent the death of the rabbit. Under certain conditions of experiment this effect is quite constant. It is not clear to us if this preventive property of the "antitoxin" is purely an antitoxic effect, but if it proves to be such it gives us hope that an animal test of an antitoxic activity might be evolved on the basis of Parish's experiments. If, on the other hand, the effect is due to the accidental presence of an antibody other than antitoxin it still seems worthy of close investigation, since a serum rich in such antibody might be useful in treating human patients in the pyogenic stages of the disease.

Though scarlet fever antitoxin does not deal with all the pathogenic activities of the streptococcus it is very important as a therapeutic agent. Experience has been uniformly in favour of the view that if it is given sufficiently early it tends to prevent the septic complications of the disease. The aggressive action of the toxin seems to be an important factor in the invasive power of the streptococcus. Antitoxin appears, therefore, to be an invaluable therapeutic agent in the toxic phase of scarlet fever, while it is quite ineffective in the purely pyogenic phase of the disease. Indeed, in the pyogenic phase there is generally in the patient's serum more than enough antitoxin to do all that antitoxin can do.

With regard to the value of agglutination as a means of identifying scarlet fever streptococci I might refer to the results obtained by Miss G. I. Steed and myself. We examined thirty-four strains of haemolytic streptococci from cases of scarlet fever by the technique described by Mervyn Gordon in his work on the subject. Twenty-seven strains absorbed the agglutinin from a serum made by injecting a rabbit with the killed Dochez streptococcus. The titre of the serum was 1 in 800. No detectable agglutinin was left when 1 in 100 was tested after absorption. Two strains completely failed to absorb agglutinin from this serum, but absorbed it from serum prepared from S. F. 18, a toxigenic strain isolated by ourselves. The two Dick strains, and also one from Dr. Anna Williams, only absorbed Dochez serum to 3/4 titre; S.F. 18 serum was completely absorbed by these three strains. Eleven strains of haemolytic streptococci from sources other than scarlet fever—for example, puerperal fever, pyorrhoea, etc.—were also tested for absorption; the great majority of these did not absorb the agglutinin, but five strains which seemed to have no connexion with scarlet fever did absorb it. These were respectively a strain isolated from strangles in a horse, one from a case of pyorrhoea alveolaris, and two from cases of pyogenic infection. It was thus possible arbitrarily to separate by absorption the bulk of scarlet fever strains from non-scarlet fever strains, but not with sufficient certainty to allow the diagnosis of an individual strain. These results confirm the work of Stevens and Dochez, and other recent investigators. At the best positive agglutination or absorption results are but presumptive evidence that a given streptococcus is a scarlet fever organism.

III.—KONRAD E. BIRKHAUG, M.D.,

New York.

FROM a bacteriological study of more than 500 cases of scarlet fever we have been able to isolate *Streptococcus scarlatinae* from the tonsillar crypts during the first three days of the disease in 97 per cent. of cases. Type specificity of these organisms was determined both by agglutination and absorption and by the toxigenic power and the specific neutralization of the toxin by *S. scarlatinae* antitoxin. The average duration of *S. scarlatinae* in the tonsillar crypts of clinical cases of scarlet fever was ten days, and after the disappearance of this organism an invasion of non-specific haemolytic streptococci dominated. These were faintly toxigenic in nature and their toxic products non-neutralizable by the scarlatina antitoxin. It is curious to note that the disappearance from the throat of the *S. scarlatinae* is coincident with the appearance in the patient's blood serum of an adequate amount of antitoxin, which, when injected intradermally in the rash of an acute case of scarlet fever, will produce the Schultz-Charlton blanching phenomenon. The longest persistence of a true agglutinable and toxigenic *S. scarlatinae* in the tonsillar crypts of a scarlet fever patient was 246 days after the initial onset of the disease. Without being able legally to quarantine this patient, she was left at large. From the patient's family three members were returned to the hospital with clinical scarlet fever during the first two months after her return home, and the patient's father developed acute pharyngitis five months later. The culture of haemolytic streptococcus isolated from the throat of the father revealed a true *S. scarlatinae*, but the "carrier" gave a negative Dick reaction to the toxin produced by his own organism. Williams and Stevens have already called attention to the wide distribution of *S. scarlatinae* in osteomyelitis, endocarditis, acute, subacute, and chronic tonsillar infections, without the clinical symptoms of true scarlet fever. The seriousness of the scarlatinal "carrier" problem in close as well as disseminated epidemics of scarlatina must some day demand the same attention we have paid to the diphtheria "carrier" problem. Dr. O'Brien has already so commendably pointed out the difficulty which confronts

this purpose he immunized a donkey and a horse according to the method of Dochez. Up to the present the treatment had been tried on sixty patients. The average dose was 100 c.cm. of the unconcentrated and 15 c.cm. of the concentrated serum. In only eight cases was more than one dose given. The most marked effect was the prompt improvement of the toxic depression of the patient. This was followed, if the serum had been given early enough in the disease, by an almost critical drop in the temperature and the rapid disappearance of the erysipelatous lesion, together with the accompanying oedema and blebs. Dr. Birkhaug showed a very interesting series of lantern slides of erysipelas in rabbit and man, illustrating the effects of treatment.

DISCUSSION.

Dr. OKELL said that the reactions obtained in the rabbit with the *Streptococcus scarlatinae* resembled those of Dr. Birkhaug with the erysipelas organism.

Dr. O'BRIEN raised the point as to whether the serum was antibacterial as well as antitoxic. Work had been done in Russia twenty years ago on the streptococcus of scarlet fever. But the serum they made was antibacterial, produced by the injection of cocci, and was apparently not antitoxic. If this serum had been of value in the treatment of disease it would have long ago come into general use; antibacterial serum was conceivably of no value. The antitoxic serum probably contained all that was required.

Dr. BIRKHAUG, replying, said that it was Dr. Park's experience that horses immunized against *S. scarlatinae* produced a serum highly antitoxic during the first six months of immunization, but that the serum first became bactericidal after eight months. The same held true of the erysipelas antiserum. It had been interesting to note that patients having recurrent attacks of erysipelas had been actively immunized against such attacks by graduated doses of toxin injected intramuscularly. It was premature to judge the persistence of this active immunity, but so far this had lasted six months in individuals who previously had attacks every six to eight weeks. They might find that this active immunity followed the same lines as diphtheria toxin-antitoxin immunity, and recently scarlet fever.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

COMYNS BERKELEY, M.D., M.CHIR., F.R.C.P., President.

DISCUSSION ON THE PLACE OF INDUCTION OF PREMATURE LABOUR IN THE TREATMENT OF CONTRACTED PELVIS.

OPENING PAPER

BY

J. BRIGHT BANISTER, M.D., M.R.C.P.LOND., F.R.C.S.ED.,

Consulting Obstetric Surgeon, Queen Charlotte's Maternity Hospital; Assistant Obstetric Physician, Charing Cross Hospital; Surgeon, Chelsea Hospital for Women.

A PERUSAL of the annual reports of maternity hospitals brings to light the frequency with which Caesarean section is performed in the management of cases of pregnancy complicated by contraction of the pelvis, while in the last few years much valuable information has been obtained as regards the dangers, after-results, and subsequent labours attending or following the operation. I confess to a growing suspicion that Caesarean section is being employed oftener than is justified in the presence of, or in the anticipation of, difficulty in labour due to pelvic deformity, and I am grateful to the officers of this Section in that they have done me the honour of asking me to open a discussion upon the place of induction of labour in cases of contracted pelvis. I stand here as a sinner who has repented, knowing that in the past I have been guilty of performing Caesarean section more often than a riper judgement would allow me to do to-day, and conscious that there is more in the treatment of labour in cases of contracted pelvis than the employment of Caesarean section. I am convinced that the operation of induction of premature labour has fallen into unjustifiable disrepute, and that it can be employed with success in many cases where a Caesarean section is now done.

This discussion does not embrace any consideration of the methods of inducing premature labour, for those in use to-day are perfectly simple and straightforward.

The conclusions put before you to-day are based upon an analysis of 745 cases of induction of labour for contracted pelvis carried out at Queen Charlotte's Hospital, Charing Cross Hospital, and in my own private work. I should, therefore, like to thank my predecessors and colleagues at those institutions for their kindness in allowing me to use their records.

The first consideration in advising any procedure which departs from the normal is the danger to the mother of the means suggested. In this connexion the series under review contains one maternal death, which occurred from a pulmonary embolism on the twelfth day. This gives a maternal mortality of 1.3 per 1,000, which certainly absolves the method of any abnormal risk.

Next the danger to the baby must be taken into account, both as regards the delivery and as regards its chance of survival. In this series there were in all 99 foetal deaths, 56 of these being neo-natal and 43 post-natal in occurrence. This high mortality must be corrected by the subtraction of 5 cases in which the cause of death was wholly unconnected with the induction of premature labour. The causes of death in these cases were placenta praevia, foetal ascites, deformity of heart, exomphalos, and eclampsia. We have, therefore, 94 deaths in the series up to one month after birth, which gives a mortality of 12.6 per cent. A closer examination of the foetal mortality also brings out very clearly the enormous advantage of obtaining a natural delivery if possible. In 589 cases in this series unassisted delivery was accomplished, with a foetal mortality of 50. This gives a percentage mortality of just under 8.5 per cent. On the other hand, 132 cases were completed by forceps delivery, and of these 31 babies died before the end of the first month. This gives a percentage mortality of 23.4 per cent., amply demonstrating the danger attending the use of forceps in delivering premature infants. Yet another point worthy of mention in considering the infant mortality attending induction is the position of the baby at the onset of labour. These cases show that the incidence of posterior positions of the vertex is relatively much greater in labours resulting in the infant's death than in those cases where the child survives.

The relation between the date at which induction is carried out and the result to the baby is generally stated to be that the mortality rate drops as the date of induction advances, and this is borne out by the results in the series under review, with the exception that the inductions carried out at or near term show a greater mortality rate. This we must frankly attribute to the fact that the induction was sometimes delayed too long.

In 24 cases the method failed, and either embryotomy or Caesarean section had to be adopted. There are in the series 5 cases in which perforation was required, some of these being followed by craniotomy, and 8 cases where the labour was terminated by Caesarean section. In all these last a live baby was obtained and throve, while the mothers all made uninterrupted recoveries.

Turning now to complications encountered, we find that the morbidity rate is no higher than that obtaining among normal deliveries. In this series 29 patients had a pyrexial puerperium, giving a morbidity rate of just under 4 per cent. In a few cases a certain amount of haemorrhage is noted to have occurred after the introduction of bougies, but this was never serious.

In 12 cases the cord prolapsed, and this accident was in this series, attended by a very high foetal mortality, no fewer than 9 of the children being born dead. This prolapse seems to me to be the most important complication

due to another "type" might well occur. The second point was of a purely practical nature and arose from Dr. Okell's remarks concerning the standardization of the toxin of, and antitoxin to, *S. scarlatinae*. Unless some species of susceptible animal was available for such standardization they must fall back upon *in vitro* tests. Notwithstanding the failure that had so far attended the application of a test similar to the Ramon test for the purpose in view Dr. Tulloch thought that further work on tests of this nature was indicated. When the extreme subtlety of all biological precipitation reactions was realized, a precipitation which occurred in colloidal systems of extreme complexity, it was obvious that much work would have to be done before concluding that a method of standardization based upon precipitation was valueless. He suggested, therefore, that in performing precipitation tests designed for the standardization of scarlatinal antitoxin a variety of electrolytes might be used for diluting the interacting reagents. The use of a suitable electrolyte might eliminate the difficulty which arose from false positive reactions, since non-specific agglutination, for example, occurred whenever the electrophoretic potential was reduced to + or −15 millivolts. There were certain electrolytes—phosphate buffer solution—which allowed specific agglutination to occur when the potential was much greater than the range + or −15 millivolts. He offered this as a suggestion to those engaged in the practical work of standardization of the reagents in question with the hope that it might prove of some value to them.

Dr. D. SAGE SUTHERLAND (Manchester) said that the practical application of the Dick and rash-extinction tests was of value in fever hospitals for purposes of control and disposition of cases. All cases of scarlet fever should be tested for the Dick and Schick reactions on admission, and at intervals of about seven days. A positive Dick reaction, becoming negative in two or three weeks, was confirmatory of the diagnosis; the persistence of a positive reaction beyond this period would make one regard the case in a more critical manner. The convalescent serum in such cases might then be tested as to its rash-extinction producing properties on undoubted cases of scarlet fever with controls. The application of the Dick test in cases of diphtheria on admission was of assistance in the differential diagnosis of serum, enema, and scarlet fever rashes, or the occurrence of faint rashes of doubtful nature should such occur during the period of convalescence. On the accidental introduction of scarlet fever to a diphtheria ward a knowledge of the most susceptible patients (those giving positive Dick reactions) was at their immediate disposal; passive immunity might be established in these cases without delay by injection of prophylactic doses of immune serum. Discharge of cases and control of infectivity by bacteriological examination for demonstration of the absence of *S. scarlatinae* would be difficult to carry out in hospitals without the assistance of a special pathologist on the staff.

Dr. PENFOLD asked Dr. O'Brien whether he would give details of the "suitable broth" he had mentioned as a culture medium for *S. scarlatinae*. He would like to know the percentage loss of antibody during concentration of the serum. He also asked whether it was possible to produce nephritis in animals.

Dr. DONALDSON asked Dr. O'Brien to what extent the so-called *Streptococcus scarlatinae* had been found responsible for the septic complications following scarlet fever. Far from having been converted to the view that scarlet fever was caused by the *S. scarlatinae*, the facts which he had heard rather suggested that the true primary cause had not yet been discovered. The disease seemed to have points of close analogy with swine fever, where the actual virus was usually accompanied by a bacillus. Dr. Donaldson suggested that possibly the *S. scarlatinae* might be regarded as an indicator of scarlet fever rather than as its cause, in the same way as *Bacillus suipestifer* might be regarded as an indicator of swine fever. The *S. scarlatinae* bore a very close relationship to scarlet fever, but they must not be induced on those grounds alone, however strong the temptation might be, to accept it as the cause. From the point of view of science its claim had not yet been established.

Dr. FLOID asked whether there was any explanation of the well known fact that the type of scarlet fever had become much milder in recent years.

Dr. O'BRIEN, in closing the discussion and in answer to questions, said that the work of Dr. Parish seemed to show that a good scarlet fever antitoxin would consistently protect a rabbit against a lethal dose of culture of *Streptococcus scarlatinae*, both being given intravenously, while a poor serum would not. The immunization of nurses was already being practised in England with, so far, very promising results. It was at present premature for the bacteriologists to claim to speak with authority to the public health administrator and tell him which people were potential carriers—that is, distributors of scarlet fever. Dr. Trevan had tried the effect of scarlet fever toxin on the capillary loops of the intestine, but could not find any consistent effect. He agreed with Professor Douglas that the absence of research in infectious fever hospitals was lamentable, but hoped that the appointment of the pathologists to the Metropolitan Asylums Board and also, probably, to the fever hospital in Manchester, would mark the commencement of a time when the amount of clinical pathology in infectious fever hospitals would be comparable with that in large teaching general hospitals. He felt that if the antibacterial serum made by the injection of streptococci could be of any use, that fact would have been discovered during the many years that antistreptococcal serums had been used for the treatment of scarlet fever. He was, however, at present disinclined to hope much from antibacterial scarlet fever serum. He had concentrated scarlet fever serum on a large scale; apparently considerable losses occurred if the routine processes were used, but it was very difficult to check the loss, since the present methods of titration were so difficult to command and so liable to fallacy. The speaker now fully accepted the *Streptococcus scarlatinae* as the cause of the disease. If belief was retained in a filterable virus it was necessary to show that "subcultures" through many generations of Dick "toxin" must still produce the "Dick reaction," and, further, it must be assumed that the virus survived and grew *pari passu* with the streptococcus through many generations in artificial culture, for antitoxin made by injecting the toxin of the streptococcus subcultured for several years was specific.

THE ETIOLOGY OF ERYSIPELAS AND ITS SPECIFIC THERAPY.

BY

KONRAD E. BIRKHAUG, M.D.,

New York.

[*Abstract.*]

DR. BIRKHAUG said that two years ago he was able, by means of agglutination and absorption tests, to show that 91 per cent. of erysipelas strains of haemolytic streptococci isolated from typical erysipelas lesions fell antigenetically into one group, and that this group could be readily distinguished from other types of haemolytic streptococci. He then produced erysipelas experimentally in rabbits. The pathological condition closely resembled that seen in human erysipelas. He found that intracutaneous infiltration of immune erysipelas serum with *Streptococcus erysipelatis* prevented the development of lesions. Subcutaneous or intravenous administration of the serum protected the animals against lethal doses of *S. erysipelatis*, but not against other streptococci. In a study of the toxin produced by the erysipelas organism he found that a skin test dose of 0.1 c.cm. of a 1 in 1,000 dilution of the toxic filtrate produced in susceptible persons a lesion similar to that found in the Schick and Dick tests. The lesion was neutralized by mixing the skin test dose with an equal amount of convalescent erysipelas serum or with 0.001 c.cm. of immunized rabbit or donkey serum.

Dr. Birkhaug had then set to work to try the effects of erysipelas antistreptococcic serum on clinical cases. For

Secondly, that premature induction of labour is not to be decided upon lightly, but should be dependent upon very careful investigation and frequent examination.

Thirdly, it affords the only actual test of the power of a given uterus under conditions which imply a reasonable chance of the survival of the baby.

Last, but not least, it is an attempt to procure what is rightly regarded as the highest aim of the true obstetrician —a natural parturition.

GENERAL DISCUSSION.

Dr. RHODA H. ADAMSON (Leeds) said that the question of induction of labour as a form of treatment of contracted pelvis depended in the first instance upon the degree of contraction, and secondly, upon the shape of the pelvis as regards general deformity and also the tilt of the sacrum. The type of contracted pelvis met with in the district in which she practised varied very much with the social position of the patient. Her private patients mostly had symmetrical pelves, and if they were contracted they fell under the heading of "small round pelvis." Her hospital patients were drawn from an urbanized community, brought up under poor housing conditions and suffering from the result of infantile rickets. The infant welfare movement was in its early days when she was appointed to the staff of the Leeds Maternity Hospital fifteen years ago, and the result of its work was not yet apparent in the better physical development of their present hospital patients. They had, therefore, many cases of contracted flat pelvis as well as the simple flat variety; the classical type of small round pelvis formed only a small proportion of their hospital cases of pelvic contraction. The small flat pelvis as she had seen it was not suitable for any treatment except that of Caesarean section, as the pelvic inlet would not permit of the passage of a viable child. The simple flat pelvis had in her practice given rise to most surprisingly good results when left alone and allowed to go into labour at term, the presenting head having engaged somehow in the only diameter of an asymmetrical pelvis through which it could pass. She had a patient who was on the black list of the local supervising authority of the Central Midwives Board, having lost her first three children as a result of difficult and instrumental delivery for her flat pelvis. Dr. Adamson had had this patient under her care with her fourth and fifth labours. On both occasions she had been prepared for Caesarean section; and both times she had delivered herself of 7 lb. children in a few hours, the frontal region having slipped into the recess to one side of the sacrum after labour had started. In Dr. Adamson's opinion the type of case that was best treated by induction of premature delivery was one in which there was a moderate degree of general contraction, when the head could still be pushed into the pelvic inlet at the thirty-fifth or thirty-sixth week of pregnancy. It was worth remembering that the child's head tended to resemble in shape and hardness the head of its father, and that in the case of the *petite* primipara with a small round pelvis it was worth while having some personal knowledge of the size and build of the husband. Dr. Adamson considered the actual measurements of various diameters of far less importance than the relative fit of the presenting head at the inlet. She had no personal experience of induction before the thirty-fifth week, as she felt that at an earlier date the child would be so feeble that it would not stand the strain of a long labour equal to that at full term with a normal pelvis.

Dr. J. S. ENGLISH (Singapore) had always found that a careful vaginal and external examination, together with Munro Kerr's method of estimation of relationship of the head and pelvis, were of a great deal more value in estimation of the date of induction than a measurement of the exact size of the pelvis by a Skutsh pelvimeter. It frequently happened that a 7½ lb. baby was delivered through an 8.5 to 9 cm. pelvis, and in other cases a 7 lb. baby was arrested in a 9.5 to 10 cm. one. He suggested that when a physician had had any trouble with a confinement the patient should be given a history of the case in order to guide another in the conduct of her future labours.

Professor LOUISE MCILROY (London) said that in ante-natal work it was essential to ascertain the date of the pregnancy so far as possible, since mistakes might be made as to the exact time when induction of labour was performed. An immature infant might die in labour from prolapse of the cord, or it might be brought into the world and survive only a short time. For this and other reasons it was better to perform Caesarean section at labour. There was better contraction of the uterus, less risk of haemorrhage, and by giving labour a trial Caesarean section was often found to be unnecessary, even in cases where the head would not enter the brim until just before expulsion of the child. In one patient sent for advice as to the possibility of the continuation of pregnancy in a case of marked spinal deformity, and where Caesarean section seemed the only method of delivery possible, the patient had a normal pregnancy with the exception of a pendulous abdomen. Labour, however, unexpectedly occurred before term, and the patient was brought into hospital and delivered herself of a small but healthy child without even the use of forceps.

Induction of premature labour should never be considered before the thirty-sixth week of pregnancy, and in the majority of cases the thirty-eighth week gave good results where Caesarean section was out of the question. The difficulty in most labours in minor degrees of generally contracted pelvis as seen in London was not only in the size of the head but in the failure of flexion. If manual rotation of the posterior occiput and flexion of the head was performed in labour, or, if possible, in late pregnancy by the abdominal route, many cases of difficulty and delay in labour could be avoided. Cases of failure of the head entering the brim could be estimated to some extent, but the chief difficulty lay in cases of contraction of the outlet where complications only arose when the presenting part arrived in the cavity of the pelvis. Although a general estimate of the contraction could be arrived at there was no definite method of accurate measurement yet invented. The difficulty would always be to estimate the size of the outlet with that of the presenting part. In a case of breech with extended legs it was extremely difficult to give any prognosis as to the character of the future labour. In the majority of cases version failed when an attempt was made to bring the head into approximation with the pelvis for the process of estimating their relations. More attention should be paid to the conduction of labour. The patient should not be urged to strain or pull on any fixed object, as the work entailed caused fatigue of the uterus and loss of contractions. Sedatives should be given and labour should be allowed to take its course. If mother and child were well there was no need to hurry, no matter how busy the medical attendant was. The administration of morphine was very beneficial in avoiding fatigue; the use of pituitrin was dangerous. Post-maturity was sometimes a cause of difficulty in labour in a slight degree of pelvic contraction, and induction of labour in these cases would save a considerable number of infant lives. The size of the father's head was a very important point when dealing with a mixed race such as the Anglo-Saxon. The relative sizes of the parents was also given consideration in stock-breeding farms. In young pregnant girls Caesarean section should not be performed for a small pelvis, since the pelvis was not fully developed until after 18 years of age Repeated vaginal examinations during pregnancy were as a rule unnecessary except for special indications. Obstetrical patients seemed to object more than gynaecological to examination. This in itself might be protective, and indicated that as few as possible should be made; abdominal palpation and external measurements were sufficient in the majority of cases. The methods of induction varied, the most satisfactory one, apart from drugs, being the flexible rubber tube. X-ray plates showed that the tube reached the fundus, and by coiling up between the ovum and the uterine wall proved a very effective irritant to the uterus.

Mr. HARVEY EVERS (Newcastle-on-Tyne) thought that Dr. Banister had established the value of induction of premature labour in cases of contracted pelvis. As one who did a great deal of ante-natal work, the practical difficulty

from the foetal point of view, but may be attributed to the pelvic contraction as much as to the premature induction of labour.

These 745 cases show, I think, that premature induction of labour presents a safe method as far as concerns the mother, and in favourable cases gives good foetal results. It remains to suggest the application of the method in regard to, first, those cases suitable for its employment, and secondly, the choice of the time for carrying it into effect. Ante-natal examination is now an integral part of the duty of practitioner to patient, and one would assume that the first examination is carried out during the mid weeks of pregnancy. The presence of pelvic deformity is now recognized and the degree of contraction noted. If on measurement of the given pelvis the true conjugate is calculated to be 3¼ in. or less, induction of labour is contraindicated. It is certain that with a pelvis of this size or smaller there is but little chance of delivering naturally a child of sufficient size to have any real prospect of survival, and the rational treatment will be to perform a Caesarean section at full time. When, however, the pelvis is found larger than this, the question of induction may be considered, and the next problem to be solved is the optimum time for the operation.

There is no doubt that the choice of the best time for induction of labour in a case of contracted pelvis calls for repeated careful investigations by the practitioner in charge. Two main points have to be considered—that is, the relative sizes of the presenting part and the pelvic brim, and the shape of the pelvis. In addition, but subsidiary to these, is the position of the child's head.

In order to appreciate fully the points which lead us to a decision frequent examinations are imperative. It is not too much to say that these patients should be seen every week, and that the relation between the child's head and the pelvic brim should be investigated each time. The shape of the pelvis may be of no small value in gauging the time for induction of labour. If I might generalize, I would say that a pelvis contracted in all directions presages an earlier induction than one in which the deformity consists of a flattening.

Should the contraction be oblique, the position of the occiput must be accurately known. If this be upon the contracted side, the mechanical difficulties of delivery will be greatly increased and induction should be carried out relatively early; if it be found on the wider side, the mechanical conditions are in favour of delivery, and induction may be accordingly delayed.

By far the most important clinical investigation is the determination of the coaptation of the child's head to the pelvic brim—the endeavour of the practitioner to answer for himself the question, "Will this head go through this pelvic brim?"

Whatever method be used, we endeavour by bimanual examination to obtain an appreciable descent of the head through the brim, and if this descent is achieved we can with safety consider that induction may be postponed awhile. At weekly intervals this examination is repeated until the time comes when descent is doubtful. At this stage an examination under anaesthesia is of very great assistance, for by this means the conditions present can be most fully determined. It has been my experience that examination under anaesthesia at this time nearly always leads to the conclusion that the disproportion is not so marked as was thought before the anaesthetic was given. Should this happen, it is my practice to advise induction in fourteen days' time, provided the pregnancy has advanced to thirty-five weeks. Should the result of examination be that only a small amount of movement be obtained, I would advise induction in one week—again with the same proviso as to the length of gestation. If the head cannot be made to engage at all, but there is no real overlapping at the upper border of the symphysis pubis, the indication is towards immediate induction. As was pointed out by the present Master of the Rotunda Hospital, experience brings to all of us an increased belief in what Nature can accomplish in dealing with cases of contracted pelvis, and it is this reliance on her power that enables us to wait to induce labour until the head will *just not* enter the brim, always provided that we see the patient at short enough intervals.

Certain special points may also be noticed during this complete examination relating to the position and attitude of the head. For example, in dealing with a generally contracted pelvis, if the head is noticed to be well flexed and in an occipito-anterior position, induction may be safely advised, although manual efforts may not be able to produce much descent; while, to take another example, if in a flat pelvis the sagittal suture is felt to be definitely nearer the symphysis than the promontory, and the child's head more extended than flexed, it is doubtful whether induction should be recommended at all.

It may be said that these frequent examinations, and particularly the employment of anaesthesia, will be resented by patients, and even that they will refuse to submit themselves to them. I do not believe this to be true in the majority of cases, for the tendency to-day is for prospective mothers to demand ante-natal care, and protection from the difficulties of childbirth. Moreover, a frank explanation of the reasons for the frequent examinations will remove any resentment which might possibly be shown, and will prove to the patient that the object is to ensure, if possible, a natural labour and delivery. If this be gained, surely the discomfort of several ante-natal examinations and an anaesthetic is but small cost. Again, it may be urged that these preliminary investigations require time which the busy practitioner can ill afford; but in reply it is surely fair to suggest that upon the opposite side of the account we may place the saving of the time and mental wear and tear which accompany a long and difficult extraction through a small pelvis.

May I suggest, too, that in the employment of induction of premature labour we can obtain evidence of incalculable value as to the capacity of the particular uterus to deliver itself of children? The trial labour has been spoken of on many occasions, and it has very many advantages. If such a trial labour be arranged at a carefully calculated date, we are surely using it in its most advantageous form, and we shall obtain therefrom most valuable knowledge as to what one might perhaps term the capacity for delivery of a particular patient. We obtain it, it is true, at a certain risk to the life of the child, but we have the consolation of knowing that we also obtain it at a risk to the patient one-tenth as great as that involved in Caesarean section (putting the mortality of that operation as low as 1.3 per cent.), from which no knowledge at all is gained of the possibilities of normal delivery.

The knowledge gained, applied in a subsequent pregnancy and labour, renders the task of deciding upon the means to be adopted very much simpler. At the best we may discover that a patient is capable of delivering herself with infinitely greater ease than we either expected or hoped, and as a result we may be able to leave the next pregnancy to go to full term. Conversely, we may find more difficulty than we expected, and may have to revise the procedure on a subsequent occasion.

"Once an induction always an induction" is not a true saying. On each occasion the same care in investigation is necessary, together with a careful interpretation of the evidence gained at previous confinements. Every induction of labour, even in the same patient, must be justified by a consideration of the attendant circumstances, and the fact that a patient has had an induction before cannot be accepted as anything but presumptive evidence.

Within the last month I have had news of a patient who had her first child by induction at the thirty-sixth week in three hours from the onset of pains, her second by induction at the thirty-eighth week, and her third and fourth at full time, the last child weighing 8 lb. 2 oz. According to my investigations, she has a flat pelvis with a calculated true conjugate of just over 3½ inches.

Finally, the points I would leave with you are these.

First, that the wider use of induction of labour in cases of contracted pelvis should be urged, and that this is especially necessary to-day in view of the widespread employment of Caesarean section. It should be urged because it is simple, safe, and unaccompanied by untoward complications and sequelae.

delivery in a labour that had been induced. Most of the deaths during premature labour that he knew of had been due to such a procedure. Nature moulded the head much better than the obstetrician could with the use of instruments. There was very little harm, so long as some progress was being made, in allowing the second stage to continue beyond the classical time, and a premature head was more likely to suffer from rapid extraction than one at term. He agreed that with an estimated conjugate of 3¼ inches and under induction of labour was contra-indicated, not only because of the great foetal mortality at birth which had been mentioned, but also from the fact, which they should all bear in mind, that, according to the statistics of the Tarnier Hospital in Paris, taking those children who were born apparently healthy, nearly 80 per cent. were dead within a year. He always tried to induce at not less than thirty-six weeks, and otherwise as late as possible up to term. Several speakers had mentioned the importance of the relative sizes of the parents. A good example of this was that in African, and probably other semi-savage tribes, difficulty due to disproportion between the head of the child and pelvis of the mother was practically unknown, and in most of the cases in which such obstruction had been encountered by medical men, it was due to a white man having impregnated the black woman. Some of the speakers had stated that they placed no reliance on external measurements of the pelvis. The commonest form of abnormal pelvis in London was that of general contraction, and the most difficult cases he had met with were in those who had not been to an ante-natal centre and in whom the head entered the pelvis, so that everything was thought to be all right. Later, however, it was found that the head would not pass out of the pelvis. He thought a knowledge of the external measurements of the outlet of the pelvis was very important. Such measurements might be very difficult or impossible to take accurately, but an idea could be obtained by a comparison with one's fist or a tape measure, and so a warning of the greatest importance might be given. He never examined a patient vaginally with the object of ascertaining the size of the pelvis before the thirty-sixth week. In the first place, no object was gained, since if the head would not enter the pelvis then it was a case for Caesarean section; and secondly, an examination before this time might be followed—*post hoc*, not *propter hoc*—by a premature labour or miscarriage, for which the doctor would surely be blamed.

DR. RHODA ADAMSON, in replying, said that when she was not certain whether the head would enter the brim or not she generally tied a tight binder before making an examination under an anaesthetic. Quite a number of her patients were never submitted to vaginal examination at all; she preferred herself, and taught her students, to rely more upon examination per rectum. She agreed with the President that no extensive examination was advisable before the thirty-sixth week. In regard to the methods of effecting induction, she had not found castor oil and quinine effective before the thirty-eighth week. She confessed she was rather frightened at the ante-partum use of pituitrin. Up to three years ago she had used bougies, since then she had used a stomach tube. If, as sometimes happened, a patient could not be induced by these methods, the alternative was Caesarean section. It was very difficult to obtain the accurate weights of babies at birth; she had found the weight of the child generally increased up to the mother's thirtieth year and then remained stationary or decreased. She had had two patients who delivered themselves spontaneously after Caesarean section.

MR. BANISTER, in his reply, took strong exception to the saying, "once a Caesarean, always a Caesarean." In quite a number of cases where Caesarean section had been performed for the first baby, subsequent children had been born easily with induction. With regard to contraction at the outlet, this was very definite but comparatively rare. Of 900 cases of contracted pelvis, in 8 only was the contraction at the outlet the predominant feature. A head in the vagina with the patient under an anaesthetic would enable an estimation of the condition at the outlet to be formed, though it would not give a measurement in inches or centimetres. He looked upon a breech with extended legs occurring in a primipara with pelvic contraction as a sure indication for Caesarean section. He advocated external measurement of the pelvis at an early date, but every vaginal examination on the pregnant woman must be justified and no such examination should be done earlier than the thirty-fifth or thirty-sixth week. He was strongly opposed to rectal examination being used in place of vaginal. He had employed most of the methods for inducing labour. At full time castor oil and quinine gave a fair measure of success, but it was useless for the induction of premature labour. He relied upon Krause's No. 12 gum-elastic bougies, usually inserting three. With the patient in the lithotomy position, after the usual toilet had been carried out, the bougies could be easily passed directly into the cervix, which had been drawn down by a vulsellum. No douching or plugging or other after-treatment was necessary or advisable. The time for labour to be completed was on the average fifty-four hours in primiparae and forty-seven hours in multiparae. Since the introduction of the 10 per cent. solution of pituitrin he had had good results by injecting 1/4 c.cm. every hour till 1 c.cm. had been given in cases where no pains came on within ten hours of the insertion of the bougies.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE FILLED DEAD TOOTH AS A SOURCE OF STREPTOCOCCAL BLOOD INFECTION.

THIS case is recorded not merely because I have so far been unable to find a similar case in the literature, nor yet because it is interesting, but with the object of discovering other cases and so establishing its identity. A symposium on this subject will be held at the Post-Graduate Hostel on October 28th, when it is hoped that cases will be brought forward either personally or in writing.

The patient was a male, aged 29. The history probably dated from May, 1919. An attack of follicular tonsillitis was clearing up, when one evening there were peculiar pains in the left ankle. The following day these had ceased, but the ankle was swollen and pitted on pressure. The patient did not go to bed until "tightening" pains of the lower part of the right chest and considerable constitutional disturbance, temperature 101.5°, ensued. No urinary symptoms or albuminuria were present. The pains in the chest gradually disappeared in six weeks, but the oedema increased, extending up the leg, but never affecting the toes. There was no further pain in the ankle nor was there effusion, though it was put in plaster for four weeks on that supposition. Many diagnoses were made, of which the most likely was thrombosis of the posterior tibial venae comites.

The tonsils were removed one month later, and the appendix, which had become acutely inflamed, four months later. During the next four years the ankle frequently showed a slight oedema, though a crêpe bandage was worn constantly and usually sufficed to restrain it.

In August, 1923, the first of the attacks of erysipelatoid occurred. A feeling of malaise and a temperature of 101° developed in about half an hour. Profuse vomiting occurred, lasting about twenty-four hours. The inguinal glands then became extremely painful, and in a further twelve hours the whole distribution of the saphenous vein was hot, painful, red, and swollen. The vein itself showed no signs of inflammation, not being hard; the affection was apparently of the accompanying lymphatics. The thigh and knee were fixed, preventing all walking. In a month the leg was quite normal.

Similar attacks occurred in June and August, 1924. In January, 1925, there was a mild attack; vomiting was much less noticeable, however. A second, even milder, attack occurred in May, when three injections of streptococcal vaccine were administered at four-day intervals; radiant heat was used during the attack. In August a very severe manifestation occurred, though vomiting and glandular involvement were slight. The leg was tender; all movements of toes and ankle were exquisitely painful; the course of the flexor tendons round the ankle was red, tender, and swollen. Mr. W. McAdam Eccles saw the case and suggested a dental focus of origin and advised having the teeth *x*-rayed, which was done, although unsatisfactorily.

In February, 1926, another attack occurred, but no vomiting; 40 c.cm. antistreptococcal serum was given. In April and June other attacks similar to the previous one developed. Dr. H. G. Adamson saw the patient; treatment by *x* rays was instituted, and the affected areas painted with a solution of silver nitrate in spirit. He advised re-examining the teeth, which was done at University College by Mr. Melville; the films were referred to Mr. J. T. Carter. His diagnosis of an abscess at the root of the

which he encountered was the sorting out of the border-line case. The gross case was generally obvious, but the pelvis with a true conjugate above 3½ inches was somewhat difficult to sift. In the multipara they could be guided by the previous obstetrical history, but the real problem was the primigravida with the border-line pelvis. If the head was above the brim of the pelvis at the thirty-sixth week a vaginal examination should be made to determine the internal pelvic measurements as well as to get the head to the brim. External measurements might be a useful guide, but the ultimate result would depend upon the fit of the head to the brim. His investigation of 150 cases of head above the brim in primigravidae with slight degree of contracted pelvis showed that about 12 per cent. came to Caesarean section. Undoubtedly a large number of these cases would have been unnecessarily induced, but induction would have saved some unnecessary sections. In his opinion the greatest trap was the asymmetrical pelvis. Where the contraction was of the simple generally contracted or the simple flat variety estimation of the fit of the head to the brim could be fairly accurately gauged. This, however, did not apply to the asymmetrical case.

Mr. L. C. RIVETT (London) drew attention to the importance of recognizing the relative proportion of the head to the pelvis. He emphatically agreed with Dr. Adamson that the size and build of the husband might have an important bearing on the size of the child. He stated that small women usually had small babies, and that in consequence the actual measurements were not as important as the proportion. He had observed several cases of very fat women, in whom he thought that fat in the subperitoneal tissues and in the obturator fossae might be a factor in reducing the available room in the pelvic canal, and gave details of a case he had treated by Caesarean section of a woman, aged 22, who weighed 15 st. He had noted that third, fourth, and fifth babies were often of larger size than the first two, and pointed out the importance of ante-natal examination of all multigravidae. After induction the duration of labour was an important guide when taken in conjunction with the weight of the baby. He advised that all patients in whom the pelvis was below normal should be given a note stating the duration of labour and the birth weight of the child, for the guidance of the practitioner who attended future confinements. He emphasized the importance of recording the correct weight, and described how erroneous weights might be given by the patient. He quoted some figures from Queen Charlotte's Hospital giving the foetal and neo-natal death rate after induction, showing the optimum time to be the thirty-eighth week and the great increase before the thirty-sixth week. He drew attention to the danger of allowing a patient with a small pelvis to go over time.

Mr. S. W. MASLEN JONES (Wolverhampton) stated that the previous speakers had all presumed due provision of maternity beds and supervision, and that the problem of induction assumed a different aspect when such a service was not available. He had not found the castor oil and quinine method very efficacious in inducing labour before term, and felt that the family doctor was averse to undertaking mechanical induction as a rule. He thought that induction by such methods as the stomach tube or bougies could be safely undertaken in private, as opposed to institutional, practice, and that the little trouble involved by this procedure would be more than compensated for by the ultimate saving of time and anxiety, quite apart from the avoidance of permanent after-injury to the mother and the production of an uninjured child.

Mr. A. B. DANBY (Birmingham) said that after a long experience of ante-natal work he had come to the conclusion that the actual measurement of the diagonal conjugate was of little importance, and that the most important single method of examination was "fitting the head," which he usually did at the thirty-fourth week, although it was his practice never to induce labour before the thirty-sixth week. He wished to draw attention to the fallacy of fitting a deflexed head, very often associated with an occipito-posterior position, which in a number of cases would not enter the brim of the pelvis. When, however, the position was converted into an occipito-anterior by the pad and binder method of Buist, he had found that in a large number the head would enter quite easily. As regards the point raised by Dr. Adamson and several other speakers as to the relative size of the father to the mother, he was of the opinion that the cardinal point was the size of the paternal head, and his maxim had been that "a man with a large head should never marry a woman with a small pelvis." Mr. Danby said that in any discussion on the induction of premature labour it was of vital importance to know the methods employed in this procedure, and he hoped that Mr. Banister, in his reply, would give them details as to his technique and the length of time occupied in inducing labour. At the Birmingham Maternity Hospital it had been the custom to induce these cases with a Jaques solid rubber oesophageal tube, size 14, instead of the usual stomach tube, the technique employed being the same as that advocated by Gibbon FitzGibbon at the Rotunda Hospital. In his experience it was a more certain and quicker method than employing Krause's bougies, when the average interval between the introduction of the bougie and delivery of the child was usually estimated at seventy-two hours. From an analysis of the figures of this hospital it was found that in the last 20 cases induced by the modified stomach tube method, over 35 per cent. were delivered within twenty-four hours, and 60 per cent. within forty-eight hours. In 10 per cent. of cases it was unsuccessful, Caesarean section being subsequently performed, and in no case did the induction-delivery interval exceed seventy-two hours. Touching upon the quinine and castor oil method of induction, an analysis of 38 district cases where it had been employed showed 68 per cent. of successful cases and 32 per cent. of failures. He had no record of the induction-delivery interval in this series, but was informed that in a number of cases the procedure was repeated on several occasions, and that it was most successful at or about term.

Mr. T. H. RICHMOND (Stoke-on-Trent) said that, like Mr. Maslen Jones, he was in practice in Staffordshire, where, so far as he knew, there were no maternity or ante-natal beds. Therefore they had no opportunity of making an extended investigation as to whether the patient could be allowed to deliver herself or intervention would be necessary. His method, if the woman gave a past obstetric history or there was any doubt, was to induce at the thirty-sixth week. He had had good results with the use of pituitrin at term, as recommended by Professor Blair Bell to prevent post-maturity.

The PRESIDENT entirely agreed, as the result of his experience at the Middlesex and City of London Maternity Hospitals, that induction of labour was far safer than Caesarean section in the cases which they had been discussing. He thought that safety was much greater than had been stated by Mr. Banister, who gave the mortality of Caesarean section as 1.3 per cent. After all, this figure had reference more to the work of experts. Medical students were so well taught nowadays that many more operated than in the past. If such a body of expert opinion as was present had declared themselves in favour of Caesarean section, naturally such advice would be relied upon, and the mortality of Caesarean section would go up by leaps and bounds, since while the induction of premature labour was a comparatively simple operation, the operation of Caesarean section required for its safe performance and result much experience and skill. The President asked Mr. Banister if he had had any experience of the administration of pituitary extract as an aid to other methods of induction. He had always fancied that the drug did not act till labour started, and yet he had heard that it was the custom to sensitize the uterus, in some quarters, with repeated small doses the week before the insertion of bougies. He had never had any personal experience of this drug in these circumstances, but he knew of a case in which bougies had been inserted to start labour, and because it did not start satisfactorily an injection of pituitary extract was given, leading to rupture of the uterus and death of the patient. Just as the death of so many children at term was due to the untimely use of the forceps, so he wished to warn practitioners against using the forceps to hasten

PRIMARY ABDOMINAL TORSION OF THE GREAT OMENTUM.

MR. ERNEST COWELL[1] recently directed attention to the subject of primary abdominal torsion of the great omentum. He suggested that the condition is probably not so uncommon as the literature would lead the observer to believe. In this connexion the notes of the following case are of interest.

A man, aged 46, of somewhat obese habit, was admitted to hospital after two days' illness. The onset was not acute; a dull pain began to the right of the umbilicus, and gradually increased in intensity. There was no vomiting, and the bowels acted as usual. The tongue was dirty. The temperature was 97.2° F. and the pulse rate 86. There was tenderness to the right of the umbilicus, and rigidity of the right rectus in the lower half. There was no tenderness over the gall bladder. An indefinite mass was palpable to the right of the umbilicus, and was regarded as an inflamed appendix wrapped up in omentum. Rectal examination afforded only negative information. The temperature and pulse rate were not inconsistent with the case being one of appendicitis. A diagnosis of subacute appendicitis was made, and operation performed forthwith.

Operation.—The abdominal cavity was entered through a right paramedian incision, the right rectus having been retracted medially. Free fluid, slightly smoky, was present in excess in the peritoneal cavity. The appendix was healthy. On sweeping the index finger upwards a mass was encountered, attached by light adhesions to the anterior parietal peritoneum. The incision was extended upwards and a piece of omentum, purplish-red, was drawn out. It was not attached to the gall bladder, which presented no sign of disease. The mass was about the size of a green fig, and was undergoing red infarction. It arose from the right-hand edge of the omentum, and lay in close relationship to the hepatic flexure of the colon. At first sight it seemed to protect a lesion of the bowel, and suggested the presence of an inflamed diverticulum. However, the mass was readily isolated, a twisted pedicle defined and ligatured, and the necrotic tissue cut away. Finally, the appendix was removed.

Recovery was uneventful, and the patient went home in a fortnight. It was not possible to untwist the pedicle to estimate the number of turns. No cause was assignable to account for the torsion of the omentum.

This case is similar to the one recorded by Mr. Cowell, and may fairly be taken to represent the type. In endeavouring to distinguish, before operation, between torsion of the omentum and acute appendicitis the following considerations are of value.

1. The onset of the illness is not usually so acute as that of appendicitis.

2. Pain and tenderness are located slightly higher than is usually the case with appendicitis.

3. With torsion of the omentum pain is not so severe, and tenderness is not so exquisite.

4. The twisted mass of omentum is, in many cases, palpable, and at a slightly higher level than a normally situated appendix wrapped in omentum.

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INFLUENZA ANTIGEN IN THE TREATMENT OF ENCEPHALITIS LETHARGICA.

AN interesting and valuable article by Dr. Crofton of Dublin on the causation and treatment of encephalitis lethargica appeared in the JOURNAL of March 27th, 1920. Dr. Crofton holds the opinion that the influenza bacillus is the cause of the disease, and in his communication adduces evidence in favour of this by giving the history of several cases of the malady which were cured by pure influenza antigen. To the perusal of his article are owing the highly gratifying results which followed the same method of treatment in the case of two patients suffering from the disease who have come under my observation.

CASE I.

A gardener, aged 58, had an attack of influenza in the second week of May, 1924. This complaint was very prevalent in the village in which he lived; two other members of his household (wife and lodger) had suffered from it not long before. Soon after getting about he began to complain of increasing weakness, and on May 20th he was found to have diplopia. These symptoms increased and then somnolence began to show itself. He would fall asleep at any time but was restless at night. He was treated with Easton's syrup, suprarenal extract, hexamine, and influenza vaccine (Parke, Davis and Co.), of which three hypodermic injections were given. The patient grew steadily worse, and on June 25th seemed to be in a highly critical state. Incontinence of urine and faeces was present, somnolence was very pronounced, and ptosis was almost complete, the patient being unable to see anything unless an eyelid was raised. External strabismus of the right eye also showed itself and some time later the Parkinsonian facies; both of these have become permanent. There was also marked mental aberration, the patient occasionally thinking that he was busy "working with wood." An injection of influenza antigen, made from pure influenza bacilli isolated from cases who had or had had influenza, was given that day. Three days later incontinence of urine was present only when the patient was asleep, while he had more restful nights. On July 5th the fourth injection of antigen was given. The ptosis had now greatly diminished. Five days later, when the fifth injection was given him, he could count fingers correctly, while on July 22nd slight ptosis was present in the right eye only, he was able to walk about the room, and his mental condition was normal. Incontinence of urine had occurred only once, and that in sleep during the preceding week. On July 29th he was able to sit in his room for half an hour daily. The somnolence, which had been passing off gradually, was now slight; he might sleep for half an hour or so twice a day. The incontinence of urine had completely disappeared. From this time onward the patient continued to improve, though slowly. In the middle of October he was able to walk out of doors, and in January, 1925, to resume light gardening work, which he has been able to carry on to the present time.

CASE II.

A girl, aged 9, in the end of last May was rather suddenly seized with illness, the clinical features of which were drowsiness, severe headache, vomiting, and obstinate constipation. Some time later other signs appeared, double optic neuritis, Kernig's sign, Brudzinski's "sign of the neck," and the temperature rose to 101°. There was leucocytosis of 42,800. On June 17th the patient was seen by Dr. Turton of Hull, who performed lumbar puncture. The cerebro-spinal fluid proved to be the same as Mustretat and Rodriguez state is found in encephalitis lethargica—namely, "the study of recorded results gives a definite impression that the formula of cerebro-spinal fluid in encephalitis lethargica is normal or nearly so."

On July 1st a hypodermic injection of one million pure influenza antigen was given; seven days later, when a second dose, the same in amount as the first, was administered, improvement was noted, Kernig's sign and Brudzinski's sign being less pronounced. Four more injections followed on July 14th, 18th, 23rd, and 28th, the dosage on these occasions being 1, 1½, 2, and 3 million respectively. Improvement was steadily maintained. On July 18th Kernig's sign and Brudzinski's sign had disappeared, while the child was taking its food well and putting on flesh. On July 23rd little headache remained, and that only occasionally. On July 28th the discs were normal. After the last injection convalescence proceeded with great rapidity and the patient was able to walk in the garden on August 2nd, and about a fortnight later was in possession of her usual health and activity.

Driffield, E. Yorks. JOHN R. KEITH, M.D.

STRANGULATED INGUINAL HERNIA IN AN INFANT SIXTEEN DAYS OLD.

ACTUAL strangulation of an inguinal hernia during the first few weeks of life appears to be sufficiently infrequent to warrant the following record. Somewhat similar cases were reported by Dr. Simmons in the JOURNAL of July 24th, 1924, and by Miss Herzfeld in that of October 11th, 1924.

A male infant, born prematurely in the seventh month, was noticed to have a right inguinal hernia. This was kept reduced without difficulty, but the bowels did not act satisfactorily, and the breast feeds were not well taken. At 11 a.m. on the sixteenth day after birth the hernia was found to be irreducible, and soon after this the child vomited. Hot fomentations and postural treatment were applied, but without success.

At 4 p.m. the same day I was asked by Dr. W. H. Milligan of Lytham to see the case with a view to operation. The infant, which weighed only 5 lb., was fretful and crying most of the time. The temperature was 99° and the pulse 130. In the right groin there was a tense cystic swelling, the size of a pigeon's egg, which was obviously very tender. Gentle attempts at reduction were unsuccessful. No testicle could be felt in the scrotum on this side. In view of the danger of delay it was decided to operate at once. The induction of very light chloroform anaesthesia was undertaken by Dr. Wilfrid Milligan of Ansdell. Before the incision was made 40 c.cm of normal saline was injected subcutaneously into each flank. The sac when opened was found to contain a quantity of dark blood-stained fluid, and about five inches of small intestine, black and covered here and there by flakes of lymph. The obstruction was relieved, and the bowel flushed repeatedly with hot saline lotion. As soon as the bowel showed a slight inclination to revive it was returned to the abdominal cavity. The sac, which was of the funicular type, was ligated and one catgut suture passed through the external abdominal ring.

The baby was put back to the mother's breast, and apart from the passage of a blood-stained motion on the following day recovery was without incident.

The interesting feature about the case was the advanced degree of strangulation—actually bordering upon gangrene—which had occurred so soon after impaction. The case also illustrates the urgent necessity for operation immediately palliative methods have failed.

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[1] Cowell, E.: *Brit. Journ. Surg.*, xii, 738.

second molar tooth was confirmed by Dr. Human, pus welling up from the infected root on removal of an apparently perfect filling. A strong antiseptic dressing was applied in July, and unless in eight weeks' time all sign of rarefaction has disappeared the tooth is to be removed. All the other teeth show large healthy pulp cavities. The tooth in question had not had root treatment, though three others had been so dealt with.

It is too early to predict a cure, but the patient has felt very much better since treatment to the tooth. One of the least explainable features was a distinct reduction in the slight permanent swelling of the ankle after an attack.

I suggest as a working theory that the first trouble was a venous thrombosis which, lowering the natural resistance of the limb, paved the way for the deposition of streptococci from the septic focus. The parts rendered vulnerable by previous attacks readily succumbed to a large dose of organisms set free from the tooth from time to time. They bore no direct relation to the first attack, which was venous in origin. The case, if it proves to be of dental origin, bears out the statement in a recent article[1] that it is the filled dead tooth which has not had its root treated, in otherwise healthy mouths, which is oftenest the source of constitutional symptoms.

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A CASE OF DIFFUSE TARSITIS.

LOCALIZED inflammatory infections of the tarsal plates of the eyelids are extremely common—for example, in Meibomian infections—but the following case of diffuse inflammation throughout the whole of a tarsal plate and confined to the plate is worthy of record.

A man, aged 22, consulted me, stating that a small swelling had appeared on the lid several months previously, but that during the month prior to the consultation it had increased rapidly. There was no pain and no tenderness. His chief concern was the disfigurement caused by the swollen lid, which was found to be greatly enlarged throughout its whole length; the swelling was slightly accentuated at the junction of the inner three-quarters with the outer quarter. Viewed from the side the lid had the appearance of a pendulous sac. The skin of the lid, which was somewhat tense, but could be easily picked up from the underlying tarsal plate, was bluish, due to compression of the venous return. The conjunctival vessels were engorged, especially over the accentuated swelling at the junction of the inner three-quarters with the outer quarter. The lower margin of the tarsal plate could be easily felt along its whole length, and the plate itself could be grasped by placing a thumb and forefinger at each end. By exerting a little pressure the plate could be felt as an elastic body with a large amount of "spring."

The accentuated swelling was incised on the conjunctival surface, but pus was not found, neither could any softened tarsal plate be removed with the sharp spoon. Hot fomentations were applied for one week, and as the swelling of the lid had not subsided it was again incised at the site of the previous incision. A small bead of pus was evacuated and also a small amount of softened tarsal plate. Since then the swelling has gradually diminished, the skin folds becoming visible in two weeks.

Two months after the second incision the lid had resumed its normal colour, and only a slight enlargement could be discerned on close inspection.

The diffuse inflammation in the plate itself was doubtless due to the primary infection in the Meibomian gland.

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OVERDOSE IN SPINAL ANALGESIA.

REPORTED cases of overdose in spinal analgesia are so rare as to be worthy of record. For inducing spinal anaesthesia I had been using Barker's solution made up in 2 c.cm. ampoules, each ampoule containing 0.1 gram of stovaine and 0.1 gram of glucose in 34 minims of fluid. The average dose for an adult was 1.2 c.cm.—that is, 0.06 gram of stovaine, varying slightly with the age and physique of the patient, and the nature and the extent of the operation. When the supply of the preparation was exhausted the dispenser replaced it by another made up according to Chaput's formula, containing stovaine 0.1 gram, sodium chloride 0.1 gram, in distilled water 1 c.cm., which was the quantity each ampoule contained. I was informed that two ampoules of the new preparation contained the same amount of stovaine as one of the older, and acted on that information in the two cases here recorded.

[1] E. Sprawson, *Lancet*, August 7th, 1926, p. 300.

CASE I.

A boy, aged 11, suffering from right inguinal hernia. He received 1.2 c.cm of the solution (that is, 0.12 gram of stovaine instead of 0.06 gram), so that he had twice the usual dose. He became pale, retched, vomited, and showed all the signs of shock; the systolic blood pressure fell to 80 mm. of mercury. On the third day after the operation he was reported to have developed incontinence of urine, and I discovered that he had retention with overflow. A catheter was passed every eight hours, and soon afterwards the patient developed cystitis and haematuria. At times there was incontinence of faeces. Evidently there was complete paralysis of the bladder, with partial paralysis of the rectal sphincter. Electricity was applied to the spine, strychnine was given hypodermically, and urinary antiseptics and tonics were administered. After three weeks, control of micturition was partially regained, the cystitis and haematuria subsided, and the general condition greatly improved. Finally he recovered complete control of the bladder and the rectum, though he was left with frequency of micturition. I saw the boy again well over a year after the operation, when he was perfectly fit.

CASE II.

The second patient, who was operated upon the day after the first one, was a girl, aged 19, admitted with acute appendicitis and abscess formation. She, too, received an overdose, as I had not by that time discovered the error. She exhibited a similar series of symptoms to those of the first patient, except that she did not develop cystitis. She suffered, at first, from frequency of micturition, but regained control in three weeks. I recently heard from her to the effect that she was perfectly fit and well.

The interest in the two cases is that a double dose of stovaine injected, owing to a misapprehension, into the spinal theca produced severe shock with retching, vomiting, and a marked fall in the blood pressure; and temporary, but complete, paralysis of the bladder centre in the cord, resulting in retention of urine with overflow and partial paralysis of the rectal sphincter, causing incontinence of faeces.

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DIFFUSE ADENOCARCINOMA OF THE COLON.

THE following case of this condition occurred in our practice.

A man, aged 64, was first seen by us on July 10th. He stated that he had suffered two years ago from distension of the abdomen, flatulence, and vague pains. He was seen at that time by a surgeon who suspected colitis or malignant disease and recommended laparotomy, which was refused. He had since suffered intermittently from the same symptoms, which became more severe; he lost weight (about 3 st.) and observed lumps in the abdomen, which were described as "being here one day and gone the next." When seen by us he was weak from loss of weight and inability to take food, and suffered from pain all over the abdomen, diarrhoea, which consisted of blood-stained mucopurulent debris, and occasional sickness. The abdomen was generally distended, the bowel standing out in typical ladder pattern in both iliac fossae. A definite mass could be felt, about the size of the fist, round the umbilicus; it was elusive and receded from the palpating hand. In the epigastrium was a hard mass running transversely along the line of the transverse colon. Gurgling and splashing could also be elicited all over the colon. The abdomen was opened in the mid-line and a malignant condition was found inside the lumen of the bowel, involving the whole length of the colon from the caecum to the rectum; the muscular coat of the bowel could be freely moved over the mass inside, and polypoid masses could be felt even in the rectum.

The condition was taken to be one of a diffuse adenocarcinomatous infiltration of the mucous and submucous coats of the bowel, and the only action taken was a lateral anastomosis of the lower end of the ileum with the pelvic colon, with the idea of obviating the inevitable obstruction which must occur were nothing done.

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ADRENALINE IN CARDIAC ARREST.

WE read with interest the memorandum on adrenaline in cardiac arrest published on August 28th (p. 388). A fortnight ago we had a similar experience.

A boy suffering from a Colles's fracture was given an anaesthetic. When the fracture was set, and fully a minute after ceasing to administer the anaesthetic, the boy ceased breathing and the heart stopped beating.

Artificial respiration was without result. We then injected about 1/2 c.cm. of 1 in 1,000 adrenaline solution into the heart, and in fifteen seconds it was beating again.

The boy was apparently dead for at least sixty seconds.

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antiseptics, and in this chapter is given a summary of their results. Numerous drugs have been tested for stability, germicidal strength, toxicity, and reliability. Amongst the preparations used intravenously have been mercurochrome, gentian violet, crystal violet, acriflavine, and proflavine. Good results would appear to have been obtained from all of these preparations, but after reading this chapter and other articles that have already appeared in urological journals, the average surgeon will hesitate to take the risk that these intravenous injections would appear to entail. However, we agree with Dr. Young, and also with that great authority Ehrlich, that the future hope of improvement in the treatment of many infections of the urinary tract lies in chemotherapeutics and in the discovery of an efficient disinfectant that can be administered intravenously without risk to the patient. Whatever criticisms might be directed against the author's work on this important branch of urology, no one can fail to admire the thoroughness with which the investigations at the Brady Institute are being conducted. The most important feature of the chapter on tuberculosis is an attempt to justify the radical methods adopted by the author in genital tuberculosis.

The second volume deals with less controversial matter and ends in four chapters on "Urology in infancy and childhood," "Urology and urologists in the war," "Testicular and prostatic organotherapy," and "The study and teaching of urology." The chapter on organotherapy has been contributed by Dr. D. S. Macht, whose work on the internal secretion of the prostate is well known on this side of the Atlantic.

We must not conclude this review of Dr. Young's book without referring to the excellent illustrations and coloured plates with which it is provided. Like the majority of American medical publications, a certain lavishness has been shown in this respect, but although the numerous illustrations must add materially to the cost of production and the price of the book, they undoubtedly assist the reader. In conclusion, it may be said that, although many will disagree with the opinions expressed by the author in dealing with some of the more controversial points in genito-urinary surgery, no one can rise from the perusal of these volumes without a feeling of admiration for the thoroughness and skill with which they have been prepared. Young's *Practice of Urology* will take its place with Cabot's *Modern Urology* as one of the two most important American works on genito-urinary surgery.

DYSTROPHIES AND DIARRHOEAS OF INFANCY.

PROFESSOR LANGSTEIN has written a short book on dystrophies and diarrhoeas in infancy,[4] and in it he has included all the chronic nutritional disorders, a subject which has produced a cloud of theories which have only served to darken knowledge. Dr. Langstein's aim in writing his book, which he says is the fruit of fifteen years' clinical experience, is to simplify both the clinical pathology and the treatment of these conditions. As to classification and nomenclature, he is not satisfied with the scheme of Czerny and Keller based on etiology and comprising the three factors of food, infection, and constitution, nor with that of Finkelstein based on clinical features, and divided into disturbance of balance, dyspepsia, decomposition, and intoxication. He falls back upon a simple clinical division into the group dystrophy where wasting is the predominant feature, and the group diarrhoea where that is the chief symptom. In this simple classification he follows the recent trend of opinion both in Germany and America, and he justifies the caution and conservatism of the British school which has always hesitated to accept the theoretical and very complicated views of the subject which have been put forward in Germany. Fortunately his aim at simplification does not stop at classification, but extends to treatment. He ridicules the employment of complicated food formulae and of numerous varieties of milk foods. Either for the healthy or the sick infant he finds a complete system of dietetics in two simple dilutions of milk (with the addition of sugar), in buttermilk, or in human milk.

The book falls naturally into the two broad clinical divisions he has chosen, and in each he deals in an orderly way with pathogenesis and causation, with the clinical features and their degrees of severity, and with treatment. An important and valuable feature is the inclusion of a considerable number of typical cases, which are illustrated by very complete clinical charts showing the essential data in a graphic form, and also by excellent photographs of the babies before and after treatment. These case records and photographs make the book more accessible to those who have difficulty in reading the German language. Further, the book is also unusual in an introduction which describes the healthy or *eutrophic* baby, again with good photographs, and thus furnishes the essential foundation of physiology. It is a noteworthy contribution to a difficult subject, especially in bringing clearness and simplicity where before there has been much complication and obscurity; and also in giving a sufficient number of case records by means of which the views and the results of the author may be examined and tested.

[4] *Dystrophien und Durchfallskrankheiten im Säuglingsalter.* Wegweiser für den Praktischen Arzt von Dr. Leo Langstein. Leipzig: G. Thieme. 1926. (Roy. 8vo, pp. 207; 79 figures, 70 charts. M.14; bound, M.16.)

AN OPHTHALMIC BIRTHDAY PRESENT.

EDWARD JACKSON is the doyen of ophthalmic surgeons in the United States of America, and in honour of his seventieth birthday some three hundred American ophthalmic surgeons have presented him, as a token of their appreciation of his distinguished and unselfish services to ophthalmology, with a volume of contributions to the literature of that subject. It bears the title *Contributions to Ophthalmic Science*,[5] and has been edited by Drs. William H. Crisp and William C. Finnoff. Dr. G. E. de Schweinitz introduces the scientific papers by a sketch of the life and work of Dr. Jackson. He is a native of Pennsylvania, and after gaining some experience elsewhere became professor of ophthalmology in Philadelphia. Some years later he went to Denver, and became professor in the University of Colorado. He has been a great teacher and a prolific writer. At the end of the volume is a bibliography of his contributions to ophthalmology and general medicine, which fills fifteen pages of closely printed titles; the first is a single paper in 1882 on mydriatics, and each succeeding year the number increases until in 1925 the titles fill nearly a quarto page. He wrote books also, and edited the *American Journal of Ophthalmology*. He possesses a trained mathematical mind, and is deeply versed in physiological optics; so that he was able to apply theory to the elucidation of the practice of retinoscopy and muscle balance when these were mysteries. Withal he is intensely practical, as witness his lecture (the Jacob Lambert Lecture) on "The prevention of blindness by good lighting."

To review so many as forty communications which form the subject-matter of this tribute would be impracticable. Perhaps those which make the strongest appeal are the following: "Studies in ocular fatigue," by Conrad Berens, L. H. Hardy, and H. F. Pierce is a fascinating piece of research. "The general management of incipient cataract in adult life," by Luther C. Peter, may well be studied by all ophthalmic surgeons. The author is convinced that improvement in vision, where there are only the earliest signs of striae, can be obtained by subconjunctival cyanide injections followed by the instillation of Dor's solution; well formed opaque striae cannot be absorbed by this method. "The cataract operation of election," by L. Webster Fox, is suggestive; he has tried all forms of operation, and after much experience concludes that the method of the linear extraction with iridectomy and capsulotomy is the best and safest.

But there are many other papers of interest, and very many fine illustrations. The book is worthy of its dedication to the veteran ophthalmologist. Dr. Edward Jackson must be proud to have elicited such a tribute from his friends.

[5] *Contributions to Ophthalmic Science.* Dedicated to Dr. Edward Jackson by his pupils and colleagues in the United States. Menasha, Wisconsin: George Banta Publishing Company. 1926. (Sup. roy. 8vo, pp. xiv + 319; illustrated.)

Reviews.

ORTHOPAEDIC SURGERY.

As far as our knowledge goes—we write under correction—the book on *Orthopaedic Surgery*,[1] by Mr. W. A. COCHRANE, assistant surgeon to the Royal Infirmary, Edinburgh, is the first modern handbook on the subject published in Scotland. We welcome it for this reason and also on its merits.

The first eighty-five pages deal with an aspect of orthopaedics to which little attention has hitherto been given in this country, yet the pathological results of faulty posture have been much insisted upon by a certain school of surgeons in America. Many symptoms, such as constipation and other "medical" conditions, are attributed to visceroptosis, which it is asserted is itself the result of faulty posture. On this side of the Atlantic we are inclined to regard such faults of posture as lordosis and kyphosis as the effects and not the causes of disease. Much further study will be necessary before the truth can be ascertained. In the meantime, good must come from the bringing forward of this subject in Mr. Cochrane's treatise. His experience as a clinical assistant at the Massachusetts General Hospital at Boston, U.S.A., has qualified him as an exponent of the practice of the Boston school of orthopaedics.

The second part of the book, which includes all but the first eighty-five pages, is arranged on a regional basis, beginning with the foot. The anatomy and statics of each part are adequately and clearly stated, and methods of treatment and of preparing and applying plaster-of-Paris and such appliances as foot-plates are clearly described. When he comes to treat of the pelvis and hip-joint Mr. Cochrane adopts the American view of the frequency and importance of such lesions as strain and malformation or displacement of the parts entering into or situated near the sacro-iliac joint. This, again, is a view that might be more seriously considered in this country. It seems possible that some of the bonesetters' triumphs may be achieved in cases of this sort which have been overlooked by surgeons. In reference to what is somewhat oddly called "painful backache," the importance of anatomical variations from normal in the lower part of the spinal column is insisted upon, and various abnormalities are illustrated by means of *x*-ray pictures. The radical treatment of such deep-seated conditions is, of course, difficult. A great deal of attention has been paid in New England to the question of back strain, which, whether acute or chronic, seems to afflict the American male much more often than the British. Spinal supports are not in much favour with British orthopaedic surgeons, but under the name of back-braces of various kinds they are advocated by the school of Goldthwait, and no doubt are often of use. Certainly they are pleasanter to the wearer than the plaster jackets which are also described and advised for certain cases in this book. The relation of round shoulders—"stoop-shoulder deformity," as the author and the Americans prefer to call it—with abnormalities of the scapula is an interesting subject, but one which is not illuminated by much dead-house pathology, opportunities of dissecting such cases being necessarily rare. Here again Goldthwait has insisted on the importance and frequency of such aberrations from normal. It is good that the views of a distinguished authority, which have hitherto not been much considered here, should be stated fairly, and we are obliged to Mr. Cochrane for doing so. For the rest the usual subjects of orthopaedic textbooks are lucidly dealt with in a manner which should be useful to practitioners. The illustrations are numerous and clear, and answer their purpose well.

NEURITIS AND NEURALGIA.

ON the subject of this book, *Neuritis and Neuralgia*,[2] Dr. WILFRED HARRIS can write as an accepted authority, and he has succeeded in giving us a work which is full of interest and information. It is no disadvantage that the text is coloured by a strong personal note, for any possible drawback on this account is amply made up by the extensive experience upon which the author draws—an experience which is freely used to enrich his clinical descriptions.

Multiple neuritis forms the subject of one chapter; in it the usual types of the disease receive adequate recognition and description, and its value is enhanced by the discussion of rare forms which have come under the author's own observation, such as that associated with haematoporphyrinuria. The various forms of neuritis which affect the cerebro-spinal nerves and nerve plexuses are carefully described, with numerous useful clinical notes. The diagnosis and treatment of sciatica are well discussed, and the different lesions of the cranial nerves receive adequate notice in lucid and concise chapters. But the chapters which are most likely to attract the attention of the reader are those dealing with the fifth cranial nerve, the gustatory functions, and the various types of trigeminal neuralgia. In writing of the last the author can draw upon an unusually ripe experience; he has provided a remarkably full and valuable account of the nature and treatment of paroxysmal trigeminal neuralgia, in which full details of his own method of alcohol injection are given. Such rare conditions as glosso-pharyngeal neuralgia and geniculate neuralgia are very fully described, and in these, as in other matters, the anatomical and physiological descriptions lend an additional value. There is a chapter on migraine and allied neuralgias, which provides again many illuminating cases from the author's experience. The illustrations, both figures and photographs, are good; at the price of 12s. 6d. we think that the volume is a very valuable and informing production.

UROLOGY.

THAT the American School of Urology is in a flourishing condition is shown by the excellent literature it has produced during the last ten years, and the latest work coming from this source, YOUNG'S *Practice of Urology*,[3] is yet another proof that genito-urinary surgery has fully established itself as a definite specialty on the other side of the Atlantic. Dr. H. H. Young, with whom is associated Dr. DAVID M. DAVIS in the production of these two volumes, is, of course, already well known in urological literature, and much of the contents of this book has already appeared in urological periodicals. It is, however, undoubtedly an advantage that these important contributions to the subject of urology have been gathered together. The author is particularly well known as the champion of perineal prostatectomy, and his operative results are given here. That in his hands the perineal route has justified itself would seem to be proved up to the hilt, since in seven years during the last twenty the annual mortality has worked out at zero. Even when the hospital type of patient is considered the mortality rate is remarkably low, there being 36 deaths in 1,049 consecutive cases operated on in hospital, giving a mortality of 3.4 per cent. This is considerably lower than any figure that can be furnished on this side of the Atlantic for suprapubic prostatectomy. It is also interesting to note that, contrary to what has been the experience of most British urologists, Young has found that his mortality rate definitely increases with each decade of life, so that after 75 years of age the operation is considerably more dangerous. The most frequent cause of death would appear to have been pneumonia, renal failure being second on the list. This, again, is contrary to the experience of most other surgeons, in whose mortality tables these two items appear in the reverse order. From this we are forced to conclude that the tests of renal function and preliminary treatment of the patient are remarkably successful in Dr. Young's clinic. Another chapter worthy of particular attention is that on urogenital infections and infestations. The author and his collaborators have been carrying out at the Brady Urological Institute since 1917 a systematic search for better germicides and

[1] *Orthopaedic Surgery*. By W. A. Cochrane, M.B., Ch.B., F.R.C.S.E. Edinburgh: E. and S. Livingstone. 1926. (Demy 8vo, pp. xxiii + 529; 500 figures. 21s. net, postage 5d.)

[2] *Neuritis and Neuralgia*. By Wilfred Harris, M.D.Cantab., F.R.C.P.Lond. Oxford Medical Publications. London: Humphrey Milford, Oxford University Press. 1926. (Demy 8vo, pp. xiv + 418; 45 figures. 12s. 6d. net.)

[3] *Young's Practice of Urology*. By Hugh H. Young and David M. Davis, with the collaboration of Franklin P. Johnson. Philadelphia and London: W. B. Saunders Company, Ltd. 1926. (Sup. roy. 8vo: Vol. I, pp. 746; 482 figures, 17 plates. Vol. II, pp. iii + 738; 521 figures, 3 plates. £5 5s. net the two volumes.)

Dr. Smith concluded that the development might be assisted and squint discouraged by an apparatus which would compel the child to use both eyes. A child's picture book, or an elementary lesson-book, or a card of letters of the alphabet, is supported on an adjustable book-rest. To this book-rest is connected, by a hinged attachment, a wooden guiding rod, which can be moved up and down but not laterally. The guiding rod terminates in an eyepiece which is of one of two forms. One form is a blackened vertical fin, somewhat like the tail of an aeroplane, behind which a notch to rest on the bridge of the nose keeps portions of the fields of vision of the two eyes separate. The other form resembles the eyepiece of the stereoscope, but without prisms or lenses. When a child looks through either eyepiece, it is only by binocular vision that it can see the whole picture or the whole series of letters. Of three letters in a row, with the first eyepiece it will see the left-hand letter with the left eye, the right-hand letter with the right eye, and the middle letter with both eyes. With the second kind of eyepiece it sees the left-hand letter with the right eye, the right-hand letter with the left eye, and the central letter again with both. In this way, Dr. Smith says, the tendency of vision in one eye to inhibit vision in the other—a tendency which exists up to the end of the sixth year of age—is neutralized. The child's attention is compulsorily attracted to that part of the field of vision which is not visible to the other eye; and the difficulty of getting a child to see with the squinting eye is overcome. Errors of refraction should, of course, be corrected. The child may be given a pencil and a piece of paper and told to copy the letters or figures which he sees without looking at his hands. Children who can read should read aloud when using the exerciser. Children of 3 or 4 years of age, it is said, use the exerciser easily. The exercises should be stopped or varied when the child's attention begins to flag.

Measurement of Ultra-violet Radiation.

Messrs. H. D. Griffith, B.A., and John S. Taylor, M.B., Ch.B., have devised a cadmium photo-electric cell for measuring ultra-violet radiation intensity. To measure ultra-violet light for therapeutic purposes a material must be chosen sensitive mainly to light of the wave-length responsible for therapeutic action. Cadmium exposed behind a quartz window fulfils this condition. Cadmium is completely insensitive to visible light of a wave-length greater than 350 uu., while the quartz window cuts off all radiation of a wave-length less than 200 uu. The maximum sensitivity is, approximately, at 300 uu. The photo-electric cell is glass-walled and has a receptacle or side tube blown on to it. One end of the cell is closed by a quartz window. A microscopical cover-glass shields the inside of the quartz window, while a globule of cadmium introduced into the receptacle is distilled so as to cover part of the glass wall of the cell with a layer of the metal. When the highly evacuated cell has been prepared the cadmium globule and the cover-glass fall down into the side tube, and the cell is filled with inert gas at low pressure. A plate inside the cell serves as the photo-electric electrode, and the rate of loss of charge is measured by an electroscope. The time between charge and discharge is proportional to the intensity of the ultra-violet radiation falling on the cell. The apparatus is made by Watson and Sons, Ltd., 43, Parker Street, Kingsway, London, W.C.2.

THE STATE OF THE PUBLIC HEALTH.

SIR GEORGE NEWMAN'S REPORT FOR 1925.

ENGLAND AND WALES.

[*Second Notice.**]

GENERAL EPIDEMIOLOGY.

ENTERIC FEVER (including paratyphoid) was less prevalent, 2,779 cases being reported in 1925, as against 4,121 in 1924, 3,211 in 1923, and 2,414 in 1922. There was an increased incidence of both scarlet fever and diphtheria; in the first case the notifications numbered 91,362 in 1925, as compared with 84,654 in the previous year; while diphtheria notifications rose from 40,009 in 1923 and 41,980 in 1924 to 47,720 in 1925. The diphtheria death rate continues to fall. In 1911, of every 1,000 persons attacked 104 died, whereas in 1925 the death rate was only 58. This reduction is attributed partly to decline in the severity of the disease and partly to improved methods of diagnosis and treatment. As in the previous report, reference is made to the prevention of diphtheria by immunization. In the preparation of the immunizing mixture toxin has now been replaced by toxoid, which is toxin treated by formalin so as to become non-toxic while retaining immunizing powers. A toxoid-antitoxin mixture is at present being extensively employed; it has proved to be effective and free from any danger of loss of potency or dissociation of the antitoxin constituent. In the early part of the year, as the result of a survey by the Ministry, it was found that 4,528 children and adults had been treated by the Schick method in fourteen different schools. Most of those found positive were immunized, and in every case the schools had been free from epidemic diphtheria. Only two mild cases had occurred in treated children, and six in Schick-negative children who had not been immunized. Sir George Newman states that a small percentage of children seem to be unable to develop and retain immunity, but in these any attack of diphtheria is slight. He expresses surprise that there are still many hospitals for infectious diseases in which nurses are allowed to attend diphtheria cases without having been offered the advantage of becoming protected by immunization. He adds that one large authority calculated that the total cost to the hospital of each nurse who contracted diphtheria was £28 10s., while the cost of immunizing a nurse was 2s. 9½d. It has not yet been possible to ascertain how long the protection afforded by immunization lasts. Deaths due to influenza and pneumonia decreased, the respective figures being 12,721 and 36,990 in 1925, as compared with 18,986 and 38,970 in the previous year. Sir George Newman considers that at present the medical prophylaxis of influenza is unreliable, vaccines, throat gargling, and nasal douching having been found unsatisfactory.

Measles.

The number of deaths attributed to measles and rubella in 1925 was 5,379. Sir George Newman explains that since there is at present no effective means of preventing or controlling either of these maladies, compulsory general notification would be of little value. In areas where the essential point in treatment—good nursing—is available in the homes or provided by the local authority, the Ministry welcomes the adoption of notification. A short account is given of the attempts made to discover the cause of measles since Francis Home in 1759 tried, with doubtful success, to cause experimental infection in man, nor were those who followed him in this line of research—Wachsel (circa 1809), Speranza (1822), Katona (1842), McGirr (1850-51), and Bufalini (1869)—more fortunate, though Hektoen in 1905 seems to have produced a mild form of disease. It is doubtful also whether it can be conveyed to animals, though an atypical form has been produced. The conclusions at present are that uncomplicated measles is a mild and non-fatal disease, due to a non-filterable virus which has not yet been isolated, but which is present during the first thirty hours of the eruption in the buccal and nasal secretions, and also in the blood of patients. The gravity and high mortality of measles seem to be due to the associated streptococcal, pneumococcal, and influenzal infections. The serum of convalescent patients has been believed to have a prophylactic value in some cases, but the immunity is apparently very transient (two to three months, according to Zingher), and the supply of such serum is too limited to permit its employment on a large scale in epidemic periods. Degwitz has reported the preparation of a prophylactic serum from sheep, and it is stated that the Ministry, in conjunction with the Medical Research Council, is watching his investigations closely.

Encephalitis Lethargica.

In 1925 notifications were received of 2,635 cases of encephalitis lethargica with 1,372 deaths, as compared with 5,039 cases with 1,407 deaths in 1924, and 1,025 cases with 531 deaths in 1923. It is believed that, though these figures do not reflect accurately the true case incidence of the disease, yet that each year the number of cases wrongly diagnosed as being encephalitis lethargica is decreasing, and that an increasing number of mild or atypical cases is being included in the returns. The figures of the seven years during which it has been notifiable gave an average death rate for the period of 51.2 per cent., and suggest that a larger proportion of those attacked are ultimately killed by it than is indicated by the current records of hospitals or particular local epidemics. The disease appears to be more prevalent during the second quarter of the year. The proportion of patients who sustain some permanent injury of the mind or body remains high. Provision has been made recently by the Metropolitan Asylums Board for the special treatment of such cases, and hope is expressed that further accommodation of this kind will come into existence throughout the country.

* First notice, BRITISH MEDICAL JOURNAL, September 11th, p. 494.

"ANNALS OF MEDICAL HISTORY."

THE summer number of the *Annals of Medical History*[6] opens with an article by Dr. Theodore H. Bast on the life and time of Adolf Kussmaul (1822-1902), whose impressive portrait appears on the cover, and whose death-bed is reproduced as the frontispiece. His name, signifying "kissing mouth," was thought to be a handicap to professional success, but he declined any change, and declared that he was descended from the great Oribasius, and, indeed, used this name for some of his privately published poems. In his article on medical numismatics Dr. Fielding H. Garrison deals in a charmingly learned manner with medals, medical coins, plaques, jetons, touch-pieces, and tokens, and pays a tribute to the skill of Professor Tait Mackenzie. To those intending to become surgeons Dr. J. H. Gibbon holds up the example of Samuel D. Gross, who was a prodigious writer, and by what he published did much to make American surgery respected abroad. In his account of pioneer medicine in Western Pennsylvania Dr. Theodore Diller shows how many of the medical men in the eighteenth century were also military officers, and provides some fine portraits. Dr. W. B. Howell's article "Concerning some old medical journals" is inspired by a study of the first volume of the *Lancet*, the centenary of which was celebrated in 1923. Dr. Joseph Walsh, in a well illustrated article, gives a short history of the career, with five portraits, of Galen, and describes his discovery of the function of the recurrent laryngeal nerve. The two remaining articles deal with Chinese medicine; K. K. Chen and S. H. Ling supply interesting accounts of the great surgeon Hua Tu (115-205 A.D.), who, by rendering patients unconscious by means of an anaesthetic mixture, was able to do laparotomies and even end-to-end anastomoses; and of Pên Tsao, who doubled the number of drugs in use. Dr. Wang Chi Min of Hangchow describes China's contributions to medicine in the four periods of the ancient or legendary times, the historical or classical, the mediaeval or controversial, and the modern or transitional.

NOTES ON BOOKS.

PROTOZOÖLOGY is one of the branches of science which have progressed so rapidly in recent years that their devotees are in danger of having general principles obscured by details. Professor CALKINS, who has recently published a well written and well illustrated book entitled *The Biology of the Protozoa*,[7] considers that, although many advances have been made in taxonomy, morphology, cytology, physiology, pathology, and so on, there is "no common aim, little common background, and no common point of view through which these many aspects of protozoa study are woven together in any definite way to make a science of protozoölogy." His book is accordingly an attempt of one of the best known American teachers of the subject to provide this unifying background and common point of view; in it he discusses the general structure, physiology, reproduction and fertilization, and vitality of the protozoa, and the special morphology and taxonomy of the four great groups of the phylum—the Mastigophora, Sarcodina, Infusoria, and Sporozoa. Many keys are given, and many succinct definitions provided. The whole of protozoölogy is surveyed—not merely the parasitic forms—and so the book is one primarily for the zoologist. The medical biologist, however, will learn much from its perusal, and will gain that sense of perspective which is so necessary for a complete understanding. The tendency to specialize in the parasitic forms only, at the expense of the more natural free-living types, leads to many misunderstandings and misinterpretations, and can only be corrected by the wider knowledge supplied by more general works such as this.

Volume VII[8] of the archives published by the School of Tropical Medicine at Lisbon will doubtless be useful as a work of reference, but does not contain much of interest for the practitioner. Of the four contributions in it the first, which fills more than four hundred pages, gives an account of the climate of Portuguese India, with a wealth of detail as to the physical geography, geology, and vegetation, and of the temperature, humidity, and other meteorological observations made in various regions and districts. These are carefully tabulated, and may be valuable therefore from a statistical point of view, but it seems that a good deal of unnecessary information is included—for example, the degree of mist month by month since 1860. The compilation must have been a labour of love, for to the general reader it is about as interesting as Bradshaw—a work which it in some respects resembles. The second article is a report on the prophylaxis of paludism in the Portuguese colonies, which was presented at the International Malaria Congress at Rome. This consists of general remarks, acquiring added interest from the quaintness of the expressions, being apparently a verbatim translation of Portuguese into English. The third is a contribution to the history of malaria in Portugal, and is divided into three parts. The first deals with the disease prior to the fifteenth century, the second with the period from the fifteenth to the seventeenth, and the last brings the subject down to the early years of the second half of the nineteenth century. In the final section is given a summary, in the form of minutes drawn up by Professor Kopke, of the proceedings of the International Congress on Sleeping Sickness.

Dr. CAROLINE W. LATIMER has revised her book entitled *Girl and Woman*,[9] the first edition of which we reviewed on April 9th, 1910 (p. 878). The book is written in simple language, and has a popular appeal, inasmuch as it discusses the physical, mental, and moral disturbances of girlhood, the daily life during school-days and after, personal hygiene, and such special subjects as cardiac disability in youth, the inheritance of insanity, and instruction on matters of health and sex.

Dr. J. J. SCANLAN has reprinted in a small book, under the title *Medico-Legal Factors in Accident Insurance*,[10] three of his contributions to medical newspapers. He advocates the adoption under the Workmen's Compensation Acts of a schedule of fixed amounts of compensation for specific injuries. At the same time, he seems to admit that it is very difficult to set up a percentage scale of incapacity, though the Ministry of Pensions assesses various injuries in terms of money for gratuities or in terms of percentage incapacity for life pensions. The second article presents some medico-legal aspects of general practice; and in the third the art of medical assessing is discussed. Dr. Scanlan's style is disjointed, and his aim is not always clear. His merits are brevity and occasional appropriateness in illustration.

[6] *Annals of Medical History*. Vol. III, No. 2, June, 1926. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. 1926. (8½ × 12¼, pp. 95-211; illustrated. Subscription in Great Britain £2 2s. per volume of four numbers.)

[7] *The Biology of the Protozoa*. By Gary N. Calkins, Ph.D. London: Baillière, Tindall and Cox. 1926. (Med. 8vo, pp. ix + 263; 238 figures. 35s. net.)

[8] *Arquivos de Higiene e Patologia Exóticas*. Vol. VII. Lisbon: Pap. e Tip. Casa Portuguesa. 1925. (Med. 8vo, pp. 566; illustrated.)

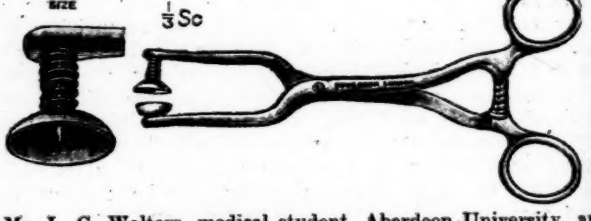
[9] *Girl and Woman*. By Caroline Wormeley Latimer, M.D., M.A. With an Introduction by Howard A. Kelly, M.D. New edition. New York and London: D. Appleton and Co. 1926. (Cr. 8vo, pp. xviii + 331. 7s. 6d. net.)

[10] *Medico-Legal Factors in Accident Insurance*. By J. J. Scanlan, L.R.C.S. and P.Edin., D.P.H. London: *Post Magazine*, 9, St. Andrew Street, E.C.4. 1926. (Cr. 8vo, pp. 27. 1s. net; post free, 1s. 2d.)

PREPARATIONS AND APPLIANCES.

Gland-holding Forceps.

DR. WILLIAM ANDERSON (assistant surgeon, Aberdeen Royal Infirmary) writes: In removing cascating tuberculous glands it is frequently difficult to obtain a firm hold by the ordinary gland-holding forceps, and artery forceps tend to tear the capsule, thereby soiling the wound. The forceps here illustrated, designed



by Mr. L. G. Walters, medical student, Aberdeen University, and made by Messrs. Down Brothers, Ltd., London, has proved to be very helpful for this purpose. It consists of two cups, which on application grip the gland, and by further closing of the handles the gland is transfixed by a pin on which the upper cup moves. As the cups are closely applied to the gland, leakage of the contents is prevented, and a very satisfactory hold is obtained by the transfixing pin.

A Sight Exerciser for Children.

Dr. Kenneth R. Smith, formerly of the R.A.F. Medical Service, has designed a simple apparatus for exercising the sight of children. He was led to its construction by the success of sight-training in the treatment of heterophoria in the Royal Air Force. Accepting Worth's observation that the vision of infants is monocular, and that binocular vision develops gradually in the first six years of life,

Nova et Vetera.

FRACASTORIUS.

THE readers of Dr. Paul de Kruif's witty book *Microbe Hunters* will find there many and happy illustrations of the extreme futility of both discussion as to "priority" in scientific research and the award of championships. Was Koch a greater man than Pasteur? is as idle a question as, Was Shakespeare a greater poet than Aeschylus? One might indeed go much further and maintain that in scientific investigation, the emotional element, the appeal, not to cold reason, but to the dramatic instincts of mankind, has had much more to do in the making of scientific history than we like to admit.

The place in history of Hieronymus Fracastoro illustrates this. Fracastoro has secured an immortality of the same kind as that of Brook Taylor. Very few educated men have never heard of "Taylor's theorem," but even of those who could correctly enunciate that theorem, only a small minority know anything more of the defunct Taylor than that it was his theorem. Probably even more people have heard, or rather read, the name of Fracastoro, since that sinful curiosity upon which Samuel Johnson commented must have led millions to turn up in a dictionary the word "syphilis," where they have found that "the word is borrowed from the name of a figure in Fracastoro's poem, *Syphilidis Libri III.*" That little spar, one word of a Latin poem, has saved the physician of the Tridentine Council from the waters of oblivion.

Fracastoro's poem was published in 1530, when he was 47 years of age; he lived another twenty-three years and was a voluminous writer. But, with one exception, no work of his other than the poem has been reprinted for more than a century. The exception is a treatise on *Contagion and Contagious Diseases*, which was first published in 1546. Of this book two versions have been issued within our generation. In 1893 Dr. Léon Meunier of Paris brought out a translation into French (with a reprint of the Latin text), and in 1910 an abridged German translation, by Professor Viktor Fossel, was issued in the series of *Klassiker der Medizin* edited by Professor Karl Sudhoff. Fracastoro's Latin prose has no special grace, so that nothing is lost by reading a translation. It is, however, better to study him in Meunier's edition because Fossel's interpretation of the phrase "trifling abbreviations" (geringfügige Kürzungen) is rather generous, and all might not agree with him as what really are "interpolations of altogether unessential matters."

The historical importance of the book is this: that Fracastoro was the first writer to state with precision the biological doctrine of contagion. He first postulated a living *contagium* capable of propagation. Fracastoro was not of course the first to perceive that diseases spread from person to person; that had been recognized much more than a thousand years before his day; nor did he even accept the logical conclusion of his own reasoning. Thus, although he is satisfied that syphilis is usually spread by contagion, he shrinks from accepting that as a universal explanation, for "it would have been impossible that the contagion, which in itself is a slow business and not readily conceived, should have spread in so short a time over so great an area." Yet the logical distinction between Fracastoro's doctrine and the traditional doctrine is clear. In none of the ancient writers is there a hint that they conceived of contagion as more than the passing on from person to person of an unchanged something; there was no question of an active part played by the recipient of contagion—he was a mere conducting medium. Fracastoro had a clearer insight. He likened contagion in disease to the rotting of fruits in contact. The process was, he thought, analogous to a putrefaction. Hampered as we all must be by the common associations of words, he was troubled by the associations of the word he used, *putrefactio*, but he was striving to express the idea of fermentation, and actually used the illustration of the souring of wine. What happened, he said, was that *seminaria*[1] were conveyed from one person to another, and these germs, "*which possess the property of propagating and begetting their like*," are the essential factors of contagious disease. Hence the essential difference between poisoning and contagion. The poison can destroy but it cannot initiate a putrefaction—that is, a fermentation. The differences between diseases conveyed by direct contact, by fomites and through the air, are referred to differences in structure and viability of the germs. In the sixth chapter of his first book, Fracastoro definitely contrasts the biological and the metaphysical standpoints. The thesis is that "The cause of contagions taking effect *ad distans* is not to be referred to occult properties."

"Those who invoke occult properties," he writes, "extricate themselves easily from these difficulties, all they have to do is to explain the whole of such contagions by reference to these properties, so that here and in other matters, they can rest quite happily and free from any trouble." He then proceeds to show how idle are these metaphysical speculations. Nothing which is a "spiritual quality" will help us to explain the facts that in contagions "not only is there a putrefaction but from the original germs others are begotten and propagated similar to the first in nature and quality (*natura et mistione*)."

Such was the teaching of Fracastoro in 1546, and, making the necessary allowance for differences of vocabulary and the occasional use of illustrations which are fictitious, there is hardly anything in his exposition which could not be taught to medical students in 1926. Shall we, then, say that not to Pasteur and Koch but to Fracastoro belongs the credit of the germ theory of disease, and that we have ignorantly given to men of our own time that which rightfully belongs to our ancestors? If we endeavour to move the "previous question" and assert that Fracastoro only guessed what Pasteur proved, the *laudator temporis acti*, particularly if he has read Dr. de Kruif's book, will most assuredly retort that Pasteur frequently reached correct and enormously important conclusions by processes which the modern statistician, logician, and bacteriologist, who agree on so few topics, would agree in regarding as hopelessly insufficient. The right answer to the question is, we believe, this: there is no such thing as an absolute scale of values in scientific truth. We must judge everything pragmatically. Fracastoro may have been, perhaps was, as great a genius as Pasteur, but the world actually owes little to Fracastoro and much to Pasteur, for the seed Fracastoro sowed fell upon stony ground and that sowed by Pasteur upon good ground.

It is perhaps true that many of the most important of the results which we attribute to the application of the experimental method might have been deduced by strict reasoning from natural observation. But it is a matter of historical fact that until the experiment (very often a quite inconclusive experiment) has been made, the logical deduction fails to convince. Thousands of able physicians in the days before experiment must have read Fracastoro; to none of them did his argument seem really important. This was not his fault nor their fault. There may be truths of the greatest importance to us in Chinese literature, but until they are translated into a language we can understand they are of no value to us, and it seems as if, at least in medicine, the language of experiment is the only one all can understand and appreciate even when it is ungrammatical. Still, the image of the old physician of Verona deserves a niche in the medical Pantheon. His claim to immortality ought not to depend upon the coining of one word.

[1] According to Lewis and Short, *seminarium* is not used in classical Latin in any other sense than that of a seed-plot or nursery, but Fracastoro evidently means something more nearly equivalent to *semen*, and the French and German translators rightly render by *germe* and *Keim*.

Cancer.

In the course of the last thirty-five years the cancer mortality has doubled, and during the past five years, with the exception of 1922, there has been an annual increase of the death rate amounting to 30 to 40 per million of the population. Sir George Newman agrees that part of this increase is due to improvements in diagnosis and recording the causes of death, and also to a larger proportion of persons surviving till the "cancer age," but he believes that there is also an appreciable increase of the disease. It is held to-day that cancer is due either to a specific exogenous infection or to some permanent change in the cell nutrition or metabolism. After referring to the researches of Peyton Rous, and of Gye and Barnard, it is added that such observations only constitute one stage in the vast field of research necessary before an effective preventive weapon can be forged. An outline is given of the activities of the Departmental Committee on Cancer, the British Empire Cancer Campaign, and other organizations, and the need of statistical investigation and public education being undertaken more extensively by local health authorities is emphasized.

Tuberculosis.

The prominent position still held by tuberculosis as a problem of public health is shown by thirty-one pages of the report being devoted to this disease. Notification and the examination of doubtful cases are generally receiving increasing attention, but examples are given of some areas which are still remiss in these respects. In a general review of the tuberculosis position in which reference is made to his previous survey in 1920, Sir George Newman indicates five great influences in operation. Increased attention to sanitary reform, factory legislation, child welfare, and predisposing diseases coincides with an advance in the social and communal health since 1851. There has been a general spread of knowledge about the contagiousness of the disease, especially since 1881; special measures of prevention and treatment have been employed, and there has been an increase in the immunization and resistance of the population as a whole. Looking forward, he emphasizes the importance of educational work, and mentions in this respect the new Public Health Act (1925), which gives increased powers to local authorities to provide public lectures and demonstrations. He considers that the community generally needs at present to learn the vital importance of seeking skilled advice as soon as there is the slightest suspicion of the lungs being affected, and of accepting treatment as soon as recommended, instead of waiting until the disease has sapped the working capacity; the treatment should be continued as long as ordered, and not be interrupted by a return to work as soon as the obvious signs have disappeared. Sir George Newman then gives an account of the tuberculosis medical service, including in it general practitioners, school and tuberculosis medical officers, medical superintendents of the various residential institutions, and medical officers of health. A table is given to show the nature of the controlling authorities of the 474 hospitals and sanatoriums approved by the Minister of Health for the treatment of tuberculosis, with over 21,000 beds. Local authorities have the charge of 428 dispensaries and voluntary organizations of 55. Considerable importance is attached to occupational treatment, and a report on special vocational training centres appears as an addendum to this section. The difficulties of this work are frankly admitted, and it is recognized that patients so trained can, as a rule, be employed subsequently only by an *ad hoc* organization. The last of the training centres for tuberculous ex-service men carried on in co-operation with the Ministry of Pensions closed in April, 1925. Through these centres 1,252 men had passed, of whom 996 were resident in England. The extent of success was diminished by too many patients having been received with extensive or active disease for lasting benefit to be gained. Of the 996 patients 612 completed the course of training satisfactorily, 134 failed for medical reasons, and 250 for non-medical causes. The after-history of 574 of the 612 fully trained patients is available, and it is shown that 25 per cent. were incapacitated within twenty months. From the industrial point of view it appears that only 7 per cent. of the 996 men have materially benefited, in spite of receiving treatment allowances during training, pensions subsequently, and in many cases money grants for tools and equipment; it is therefore concluded that the extension of a scheme of this kind to the civilian population would be inadvisable.

MATERNITY AND CHILD WELFARE.

Work under the Maternity and Child Welfare Act (1918), being permissive and not statutory, varies considerably in different districts, and financial considerations have also an important bearing on such questions as the extension of established schemes or the inauguration of new ones. The maternal mortality rate has increased from 3.70 to 3.86 per 1,000 births. Ante-natal work is in progress at 675 centres, but it is still the case that skilled supervision of pregnancy is neither requested nor received by the great majority of women, and so there is at present little hope of a substantial reduction in the maternal death rate, or in the amount of injury and disability so frequently associated with child-bearing. The hope is expressed that greater use will be made of ante-natal clinics established as part of maternity and child welfare schemes, and associated with maternity institutions for consultation and treatment. Attention is also directed to the importance of recognizing venereal disease in the course of maternity and child welfare work. There are now 146 institutions in England recognized by the Ministry for maternity work, and containing 2,216 beds. Reports from 116 recognized maternity homes, excluding voluntary hospitals, show that during the year under review 21,559 women were admitted for confinement or observation; 17,459 were delivered by midwives, and 3,930 by medical practitioners. There were 46 cases of notified puerperal fever in these homes with 14 deaths, and 96 maternal deaths occurred from other causes. In view of the expense attached to the upkeep of a maternity home and the preference of many women for confinement in their own homes, it is recommended that more attention should be given to domiciliary midwifery, and assistance be provided by local authorities in necessitous cases in respect of payment for the midwife's services, contingent upon there having been ante-natal supervision by the midwife or at a maternity centre. Local authorities have previously been invited to consider the provision of sterilized dressings, pads, and towels, but it appears that there has been little response except in Birmingham and Blackburn. During the puerperium also skilled nursing is very necessary.

Recognized infant welfare centres number 2,195, of which 561 are controlled by county councils, 861 by local sanitary authorities, and 773 by voluntary organizations. Establishments for the orthopaedic treatment of children have been approved in 17 county areas, 11 county boroughs, and 15 other areas, while in other parts of the country arrangements have been made for treatment at orthopaedic hospitals. It is urged that there should be no artificial demarcation, so far as treatment is concerned, between the child of pre-school age and the child at school. Increasing attention is now being directed to the mental health of the child, especially with a view to build up adequate self-reliance, independence, and emotional control; it is recognized that the mental health of adults is largely determined by influences operative in early childhood. Sir George Newman states, however, that in maternity and child welfare work such psychological considerations still receive too scanty recognition, and that few, if any, local authorities have considered the possibility of the practical application of psychology in this connexion. He thinks that the child's mental health should be no less a matter of national concern than its physical health, and believes that there is evidence that the principles governing the preservation of mental health can be given practical expression. He adds that the early signs of mental ill health in children can be recognized and their causes traced and treated. Parents can be enlightened on these matters by instruction and propaganda.

(To be concluded.)

A GOOD HEALTHY WATER.

LAST year we commented on Sir Alexander Houston's hope that some day the Thames would become again a salmon river. In his report for the year ending March, 1926,[1]—his twentieth as Director of Water Examination to the Metropolitan Water Board—a large proportion of the pages is devoted to the romance of the New River. The more prosaic portions of the report deal with the chlorination of Thames and New River water; with filters and pre-filtration waters; with meteorological notes, suspended solids, and a variety of health subjects. Sir Alexander Houston wonders if the Londoner realizes what chlorination means bacteriologically and financially. By its use, under skilled supervision continually exercised, the water of London is kept pure even in flood periods, while the addition of ammonium chloride and potassium permanganate, as "taste preventers" with some sterilizing action, renders the water palatable. There was a slight breakdown in "taste prevention" in the Palmers Green area in December last; but the weather condition (cold fog, with decrease in organic matter) had already provided a warning that less of the chemicals was necessary, and the reduction had been made just before the first complaints reached the Water Board. From the financial point of view heavy capital expenditure for larger storage accommodation and increased filter beds is avoided by chlorination, and filtration can be carried on more rapidly.

The examination of pre-filtration waters is based on the view that if these waters can be pronounced epidemiologically "safe," the perfect working of the filtration process becomes almost of secondary importance except for the production of a physically attractive fluid. Sir Alexander Houston regards the condition of pre-filtration waters as the pulse of the water supply that must be felt. Experiments in filtration have been conducted at the Barn Elm (West Middlesex) works since January, 1923. It has been found that the life and activity of filters can be materially increased by a preliminary rapid filtration of most of the growths and much of the suspended matters in water. Preliminary filters, working at the exceedingly high rate of at least 120 gallons per square foot per hour, can remove so much of the materials which choke slow sand filters that the latter can work five times as fast and enjoy a longer life. It is hoped that this double process of filtration will prove in the end more economical than the older single process. Sir Alexander Houston has no objection to the water being less perfect physically and chemically provided it is as safe, or safer, bacteriologically and epidemiologically. He looks to chlorination for this safety. In some places, however, it would appear that any economy effected by rapid filtration would be neutralized by increase in the costs of pumping. Experiments are therefore being conducted in the inhibition of the development of algal and other growths in water by the addition of minute doses of copper sulphate. The author notes that in looking through his album of photographs of organisms present in water he has been struck by the countless occasions on which the water should have tasted fishy (Eudorina, Pandorina, Uroglena, etc); like ripe cucumbers (Synura); grassy (Aphanizomenon, etc.); and aromatic (Asterionella, Tabellaria, etc.). He recalls only one or two instances in which London water had really an unpleasant taste due to growths; one, which many readers will remember, in 1913, when the West Middlesex water was variously described as tasting like geraniums, rotten fish, and castor oil. The taste was due to a copious growth of Tabellaria and Asterionella; the dissemination was caused by some raking operations carried out to prolong the life of the filter beds between successive cleanings; the taste was removed by adding two or three pounds of permanganate per million gallons of water; and it is gratifying to learn that the raking operations have been discontinued.

A new and fascinating, but perplexing, problem has arisen in water biology; and a section of the report is devoted to leptospira in London water. The subject was dealt with by Dr. Hindle in the BRITISH MEDICAL JOURNAL of July 11th, 1925 (p. 57). Sir Alexander Houston, on the available evidence, does not regard the presence of leptospira as of paramount significance, whether on scientific or commonsense grounds. Leptospira are found to be almost universally present, not only in the raw sources of supply, but also in filtered waters and in pure deep wells. All cultures have proved to be non-pathogenic, except the cultures from one well, the supply from which has now been chlorinated; and it is satisfactory to know that leptospira are easily killed by minimal doses of chlorine. At the same time, as Sir Alexander Houston says, the possibility of a change from a saprophyte to a pathogen opens many disquieting possibilities. He thinks that rats have something to do with poisoning water and slime, and rendering possible the production of jaundice by leptospiral water. At all events, he cannot believe that infection comes simply from saprophytic leptospira occurring in water, soil, or foodstuffs. On such a hypothesis the whole world would be jaundiced.

Sir Alexander Houston is a picturesque, discursive, and at times inconsequent compiler of reports, and we turn with interest to the earlier part of his report, the "Romance of the New River," which he describes as an oasis in a desert of dry facts, but it is really half a continent. Therein he displays his imagination, and with a touch, as he says, of *joie de vivre*, describes some of the wonderful and romantic happenings of bygone days. For him there has been nothing in the annals of preventive medicine finer than Sir Hugh Myddelton's conception of three hundred years ago, which led to the safeguarding of the health of the metropolis by bringing pure water from the Chadwell and Amwell springs in Hertfordshire by an artificial channel forty miles long to London. And so, after a preliminary account of the history of the undertaking of the thirty-six "adventurers" and King James I, we are led by Sir Alexander Houston along the whole course of the New River, from its origin in the upper River Lee and Amwell Pond to its termination in New River Head at the Metropolitan Water Board offices in Clerkenwell. The journey is illustrated by sketch maps and innumerable photographs, some of beauty spots or monuments of interest, such as Rye House, sundry churches, and Temple Bar, others of pumping stations. For the power and utility of the latter Sir Alexander Houston has no less admiration than for the beauty of the former; for are they not all part of "an immortal work: since men cannot more nearly imitate the Deity than in bestowing health"? The author's enthusiasm will inspire many of his readers to make the pilgrimage themselves—if only they possessed that master key which opens to him the private property through which the New River runs.

Sir Alexander Houston's adventurous fancy leads him beyond the waters of the New River. He does not confine his interest in meteorology to mere

[1] London: P. S. King and Son, Ltd. Price, 21s.

British Medical Journal.

SATURDAY, SEPTEMBER 18TH, 1926.

THE REGISTRATION OF NURSING HOMES.

LONG before the days of Caesar Augustus there went forth decrees for the registration of the people, but there has never before this era been a time when registrations were so numerous. Some yearn for registration, others have registration thrust upon them. Some aver that registration gives the registered a monopoly inimical to the body politic; others, like the circus proprietors, declare that it has killed their job and robbed the children of a thing of joy. A year or two ago the nurses, or most of them, clamoured for registration, and got it; now they desire that the "homes" and institutions where they work should also be registered. The project has been the subject of inquiry by a Select Committee of the House of Commons. The report of this committee has been published,[1] and the substance of it has appeared in our columns.[2] The evidence given to the committee was reported in our parliamentary column from time to time. Some of it was rather wild, or founded on hearsay, but the report itself contains a sufficiency of facts and some reasoned arguments; the balance of opinion is discovered to be in support of the recommendations made. The committee seems always to have held in mind the vision of the intensely human, and humane, purpose of nursing homes, and to have striven to frame its recommendations in such fashion as to help them in their work and not to harry them. That attitude is to be counted to it for righteousness.

The first business of the committee was to discover whether there was any case for registration. The answer given is an unhesitating affirmative. We must take their word for that. The members of the committee, after hearing the available evidence, conclude: "The need for the registration and supervision in nursing homes is fully established." We may wonder at the diversity of the evidence. The witnesses of the Ministry of Health and the British Medical Association, on the one hand, stated that there was no evidence of widespread abuses; but the College of Nursing and the Society of Medical Officers of Health made out a strong case to the contrary, the latter stating that "privately managed nursing homes form the source of constant complaints to medical officers of health all over the country." A strong point made in favour of the committee's recommendation is the fact that there is no essential difference between the maternity home and the nursing home, and since the former is registered by Act of Parliament the other should be also. The decision to supervise being taken, there arose the question by what body and what type of visitor this should be done. The committee considers that the authority should neither be so central as to be removed from contact with local conditions, nor so parochial as to involve risk of personal interest in the homes. These considerations caused it to recommend the county councils and county borough councils, with the London County Council in the metropolis. The recommendation seems to be wise.

Evidence given by the British Medical Association indicated that there was no objection to registration provided that doctors and nurses were on the local committees upon which the work was to devolve; that medical records and case-sheets were not to be open to inspection; and that doctors who received patients into their homes for treatment should be exempt from registration, or at any rate inspection. The committee endorsed the first and second suggestions, but disagreed with the third, although it had some sympathy for it. It formed the opinion that "if an individual doctor decides for purposes of gain habitually to take in patients, whether into his private house or into a nursing home, he does so with the full knowledge that he is taking up a definite trade and entering into competition with other persons who have to comply with such regulations as may be enforced." In these circumstances the committee declined to recommend any general exemption from registration of inspection in respect of any premises covered by the definition of a nursing home on the sole ground that such premises were under the direct control of a medical practitioner, resident or otherwise. "From this it would follow," the committee continued, "that the present practice of exempting maternity homes in such cases should no longer be permitted." The committee, however, made other recommendations which relieve the doctor of much of the anxiety that was expressed in the discussions at the Representative Meetings of the Association, for the committee is opposed to the compulsory exhibition of brass plates and printed rules, or any methods of inspection that would destroy privacy or a home-like atmosphere.

So much for the report. What may we conceive will be the effect of legislation in accordance with its recommendations? It would seem certain that two consequences will ensue: private nursing homes will be fewer, and with a higher tariff on the average; and private wards and private hospitals will increase. Another probable effect of registration and supervision of nursing homes will be that their standard will be raised—that, indeed, is the aim of the proposed legislation. The raising of the standard involves an increase of costs. Many small homes may be expected to go out of business, because they will not be able to meet the capital charges for improvements nor the increased current expenditure on trained staff. So that a provision which has for some years in some fashion met the needs of many middle-class patients will almost certainly be diminished, if it does not cease altogether. There will be nothing for these patients between the high-class nursing homes the cost of which they cannot pay, and the hospital charity, except in those few places where foresight and public spirit have provided wards and rooms for private patients in the voluntary hospital, or in private hospitals.

It therefore behoves the boards of the voluntary hospitals to be up and doing whilst it is yet day. They should recognize the new conditions; and at the very least have ready to hand a considered scheme for the extension of the work of the hospital for which they are responsible to meet the needs of private patients. Such a scheme they could put into operation when it became necessary owing to the contemplated changes, or earlier should a demand for it develop among the great middle-class public.

[1] Report of the Select Committee on Nursing Homes (Registration). London: His Majesty's Stationery Office. 1926. Price 4d. net.

[2] BRITISH MEDICAL JOURNAL, July 24th, 1926, p. 174.

from the immediate conclusions of the author's experimental work in the special problems with which it has been concerned. But imagination generalizes his studies and, in his mind, the heart and brain become symbolic respectively of the automatism and the wilfulness of life—the inescapable logic of causation and the physical perversity of the mind. Man can comprehend the rhythm of the tides, but the wind bloweth where it listeth. Professor Fano seeks first a meaning for "living matter," and finds in the reciprocity of structure and function the fundamental principle of life. With Cuvier, he sees form to be more significant than matter. The theory of evolution represents the intuitive faith of the human mind in the reasonableness of the conception of continuity rather than a deductively established dogma. Living matter is only material organized by the "will to live," and the search for the origin of life becomes a subjective inquiry weighted by a temperamental bias respecting finality. And so there remains only purposive action as the characteristic of life, and the tortoise teaches the author that this resides in an inherent automatism of metabolism upon which is imposed an excitability which, paradoxically, is essentially directive inhibition of vital automatism. Enough has been said to indicate the scope of this little book. It is one to which the adjective "stimulating" may properly be applied, and it will not fail to raise contention; for, while some may find consolation in the assumption of a "cosmic will," there will be others who will feel that there is no rest for the human spirit that resolutely pursues the continuity of Nature which passes unbroken still into the unknown.

INDUSTRIAL HYGIENE IN JAPAN.

THE expansion of the factory system in Japan has been attended by industrial legislation which has proved of benefit both to the industries concerned and to the employees engaged in them. The Japanese Factory Act came into effective operation in 1916, and year by year since that date hygienic standards in factories have shown improvement. An account of present-day conditions is contained in a recent report[1] by Dr. Yasutoshi Kose, inspector of factories and mines under the Home Department, Tokyo. There are, he states, 343 inspectors and assistant inspectors, of whom seven are physicians, for factories in Japan. The corresponding figures in the British Isles, excluding Ireland, were, in 1924, 205 inspectors and assistant inspectors, of whom five were physicians. The duties of the Japanese medical inspector include the supervision of safety in factories, the advancement of industrial hygiene, the prevention of industrial disease, and health propaganda generally among employers and workpeople. In these particulars his range of service is similar to that of a medical inspector in Great Britain. He has, however, additional functions in connexion with compensation for accidents. In the United Kingdom workmen's compensation, though under the Home Office, is not in charge of its Factory Department. Dr. Kose reports that of a total of some 20,000 factories in Japan, 52 per cent. are textile. In Great Britain in 1924, out of a total of 142,494 factories, less than 6 per cent. were textile. Of the total factory hands in Japan 60 per cent. are women; while of textile workers 81 per cent. are women. Of those female workers few are from the locality and few married. Most are girls brought in to the factories from agricultural districts and lodged in boarding-houses provided by employers. The boarding-houses at the large factories are usually of good type. Their equipment, heating, and ventilation are satisfactory, and their water supply abundant; the bathing accommodation, as in most Japanese dwellings, is a salient feature; the workers take a bath every day or every other day, or at least twice in the week. This frequency, as Dr. Kose remarks, is different from other countries, among which it is to be feared Britain must be numbered, though Dr. Kose does not say so. Many factories have separate houses for the married workmen. The married miner lives, as a rule, in a tenement of from one to three rooms forming part of a common building. The quality of the food supplied in the boarding-houses comes under the scrutiny of the inspectors. For men the calories allowed are from 2,500 to 2,800 a day; for women from 2,300 to 2,500. All factories in Japan except the smallest have their own doctor. Large factories and most mines have their own hospital also, well equipped and staffed by competent medical men. The factory doctors, besides treating the sick and injured, advise employers in matters of hygiene, acting for this purpose in co-operation with, or under the guidance of, the medical inspectors of the Home Department. Accurate statistics of industrial mortality are not available, but steps are being taken to procure authoritative figures, which it is intended to publish. Existing data for 1925 show 11 cases of all forms of tuberculosis per 1,000 workers, 8 being cases of phthisis. The incidence of beri-beri was at the rate of 55 per 1,000, and that of trachoma at 19. Information on industrial sickness is incomplete, but reference is made to twenty-two cases of lead poisoning among storage battery workers, and also to the occurrence of poisoning by carbonic oxide and aniline. Among persons handling native wool and hair for use by upholsterers anthrax has been unknown for some years, but several cases come under notice annually in the bone manure trade, the raw material of which is imported from other countries. Ankylostomiasis is common in the collieries, and preventive measures are urgently required. Dr. Kose's report furnishes interesting information with regard to the industrial hygiene of Japan, revealing as it does the nature of the problems which call for attention and the methods adopted, or intended to be adopted, for their solution.

[1] *Japan Medical World*, February, 1926.

THE GOVERNMENT LABORATORY.

THE routine work of analytical chemistry must, we think, be a depressing pursuit. At all events, the report of the Government chemist for the year ending March, 1926,[1] is singularly unenlivening reading. One almost sighs for a report such as a mediaeval alchemist would have produced from the depths of his imagination. Sir Robert Robertson, with a stern sense of duty and a recognition of the need for economy, condenses his report on 445,606 investigations of samples into thirty-three pages. No amount of ingenuity, we believe, could extract an atom of amusement out of the report. Yet with eighteen Government departments pouring into his laboratory all sorts of material, from offal tobacco to sea water, from condensed milk and herb beer to sheep-dip and policeman's clothing, we feel sure that Sir Robert Robertson's staff must occasionally meet with some humorous incident. The number of samples examined was some 2,500 fewer than in the previous year, but still many thousand above the number for 1923-24. The Custom House has curtailed its efforts by more than 10,000 samples. The samples of wine and of tea have decreased; but the depression in tobacco samples, caused by the cessation of large exports to the Irish Free State, is gradually being made good. The silk duties have provided the Government chemist with some extra work. From the food examinations carried out for the Ministry of Agriculture it may be gathered that the producer is behaving himself very well on the whole; but we are not informed whether drainage from roads treated with the eleven samples of proprietary road dressings which were examined had any effect on the health of the fish in

[1] H.M. Stationery Office, 1s. 6d. net.

rainfall. He enters on a diatribe against London fogs, asserts the possibly controvertible principle that "everyone has the right not only to live, but to enjoy life to the full"; and looks forward to the time when everybody will indulge in ultra-violet rays or sun-baths, with or without suitable permeable clothing. He discusses the opinions of Sir James Berry, who, in a lecture to the Hunterian Society last January, ventured to dispute the "lack of iodine" theory of goitre. Finally, Sir Alexander Houston describes how, by means of copper sulphate and chlorine, the water of swimming-baths can be kept sweet and clean-looking for a prolonged period with hardly any changes of water and no complaints as regards taste and smell. He admits, however, that the use of the same water over prolonged periods, even if well purified, is sentimentally objectionable. It would seem that the saving effected by the Metropolitan Water Board by its methods of chlorination and rapid filtration fully justifies the expense of issuing this delightful report of its Director of Water Examination.

THE WASSERMANN AND THE FLOCCULATION REACTIONS.

AN attempt to add to the present scanty information about the nature of the essential mechanism underlying the Wassermann and flocculation reactions has been made in the Bacteriological Department of the University of Edinburgh by Professor T. J. Mackie and Dr. H. Ferguson Watson, who have set themselves to solve the question whether these syphilitic serum reactions represent the activity of a natural antibody present normally in all serums in minimal amounts, and capable of being reinforced by certain infections, or whether they are the result of metabolic alteration or chemical changes in the tissues incidental to syphilis and the other conditions in which the Wassermann reaction has been noted. The occurrence of similar reactions with the serums of various normal adult animals, including the rabbit, ox, sheep, horse, mouse, cat, dog, macacus, and pig, was also investigated. Although attention was paid more particularly to the complement fixation phenomena, the flocculation reaction was studied simultaneously. A uniform antigen and technique were used throughout, and the process of fractioning positive and negative human and animal serums by carbon dioxide was utilized as an aid in the analysis of the serum function. The two investigators submit an interpretation of the Wassermann reaction, which is set out in detail in the *Journal of Hygiene* (July 14th, 1926). In the rabbit, ox, sheep, and horse the serum heated to 55° C. was found to retain the power of fixing complement in conjunction with the antigen used in the Wassermann test, and to produce a flocculation effect similar to that of syphilitic serum. They believe that these reactions represent a natural property of the serum, and do not depend upon pathological conditions, though they are absent in man, guinea-pigs, frogs, and white rats. The unheated serum of the white rat, however, was found to yield a definite, though weakly positive, flocculation reaction, while in some other animals there was dissociation in the reactions. Thus in the pig, pigeon, fowl, and cat a negative Wassermann reaction was associated with a positive flocculation, while the reverse was the case of the dog, mouse, and rabbit. In the mouse the positive Wassermann reaction was uniformly weak, and in the other normal animals it was always limited in degree, contrasting sharply with the pronounced reaction characteristic of active syphilis in man. Moreover, it was shown that young animals, 3 to 8 weeks old, of species giving positive reactions, reacted negatively. In rabbits the reacting power increased progressively with age, and in parallel with the development of a natural antibody. This parallelism supported the view that these reactions were due to principles in the serum resembling antibodies. The deduction made is that the serum reactions in the case of syphilis are due to such principles, which resemble antibodies and are homologous to antibodies natural to certain species and widely distributed among animals. Marked augmentation of the Wassermann reaction in rabbits was produced experimentally by immunization with heterophile antigen, confirming the work of Taniguchi, and by infection with *B. tuberculosis*. It was next found that the fractions of normal human serum insoluble in carbonic acid and the serum of negatively reacting animals might yield, after being heated at 55° C., a weak complement fixation effect with the Wassermann antigen. This property is described as being "masked" in whole serum, lost when heat over 60° C. is employed, and more marked in the unheated fraction. Differences were detected in this respect between the serum fractions of normal animals and of human syphilitics, but these are held to be due to variations in the total content of the reacting substances in the serum and their distribution in the serum fractions. These observations seem to indicate that the principle in serum responsible for the Wassermann reaction is present normally, in minimal amount and in a "masked" state, even in those animals which give a negative reaction when tested in the usual way. It would appear, therefore, that the diagnostic reaction in man is due to the non-specific augmentation of this natural principle. The dissociation of the Wassermann and flocculation properties in syphilitic serum was manifested by carbon dioxide fractioning, the soluble fraction being more active in the flocculation test, and the insoluble moiety in the Wassermann test, though in some cases the dissociation was less obvious and in others absent. It is suggested, therefore, that the Wassermann syphilis reaction represents the increase of a "lipoidophile" antibody naturally present in the serum in minimal amount, and in a masked state, which in syphilis is non-specifically augmented in an analogous manner to the augmentation of the natural anti-sheep haemolysin by heterologous stimuli.

THE MEANING OF PHYSIOLOGY.

THE discipline of physical science does not encourage in its servants excursions beyond the stubborn facts which feed its thought. Yet, if we have "intelletto d'amore," the imagination must often break the barrier between the objective contemplation of nature and the wider consciousness of man, though it may only tease the soul in secret. When, however, an eminent man of science does attempt an expression of the wider meaning of his observation of matter, our reticence will not forbid enjoyment of his philosophical adventures. In *Brain and Heart*[1] we have a translation of a series of lectures by Professor G. Fano, a distinguished Italian physiologist who, as Professor E. H. Starling in a foreword very properly observes, "is also philosopher, artist, and man of letters." Since the translation conveys to us a live picture of the manner of man we feel the author to be, it is probable that the translator, Dr. Helen Ingleby, has been very successful in her task. The lectures represent the autobiography of an experimentalist whose observations feed his restless mind. His problem is the investigation of the physical nature of the heart rhythm and the inwardness of the excitability of living matter. His material is the fresh-water tortoise, his apparatus the conventional equipment of the physiological laboratory artfully employed. Much productive work has derived

[1] *Brain and Heart.* Lectures on Physiology. By Giulio Fano. Translated by Helen Ingleby. With a Foreword by Professor E. H. Starling, C.M.G., M.D., D.Sc., F.R.S. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1926. (Demy 8vo, pp. ix + 142; 19 figures. 8s. 6d. net.)

medical aspect. Public administration is dealt with by Sir William J. Collins, one of the vice-presidents; and the Hon. Sir John Cockburn, Colonel C. H. Melville, and Fleet Surgeon W. E. Home write on the oversea dominions, military hygiene, and sanitary advance at sea. The rest of the book summarizes the multifarious activities of the institute, including congresses and conferences, lectures and examinations, and the publication of transactions and a journal. There are now about 5,000 members and associates of the institute, the work is extended to India and most of the dominions, and since the institute obtained its present premises at 90, Buckingham Palace Road, in 1909, a much larger space has been available for the Parkes Museum. For this museum, which is open without charge, the public may well be grateful to the Royal Sanitary Institute.

LEAGUE OF NATIONS ASSEMBLY.

[FROM OUR CORRESPONDENT AT GENEVA.]

THE brilliant skies under which the League of Nations Assembly is meeting at Geneva do not tempt the delegates to shorten their discussions. Some of the meetings are held in the open air, in the gardens of the Secretariat, and these continue until the closure is moved by the coming of dusk. The political barometer, too, is high; although there is a depression centred over Spain, and another over South America, a large anticyclone has set in from Germany. The welcome of the German delegates was all that could be desired, and the acclamations which greeted M. Briand's speech of goodwill, in which he said that France and Germany had had enough of battle and must now turn to co-operation in peace, will be long remembered.

Opium and Dangerous Drugs.

The question of opium and other dangerous drugs is occupying a large place in the committee business of the Assembly. At a meeting of the League Council, M. Unden, the Swedish representative, gave a report on the eighth session of the Advisory Committee, and spoke in serious terms of the magnitude of the illicit traffic. He urged all States to complete without delay their ratification of the Geneva Convention of 1925, although he had to admit that his own country had not yet done so, and that the only States members of the League which had so far forwarded their ratifications of the Convention were Great Britain, Australia, New Zealand, the Union of South Africa, and India.

Sir Austen Chamberlain spoke strongly in the Council on this subject, emphasizing the great importance which attached to the ratification of the Geneva Convention, particularly by those States which are members of the Council. He said that the work of the Advisory Committee at the present time was seriously impeded and largely at a standstill for want of this ratification. On the proposal of M. Scialoja, the representative of Italy, the Council instructed a communication to be sent to the various States emphasizing the importance of speedy ratification, and decided also to draw the attention of States to the importance of the regular receipt of information from them on the traffic in drugs, including the quantities seized by their authorities, and, in the case of countries producing coca, statistics relating to the export of this raw material and of crude cocaine. Special attention was drawn in the Council to the steps taken in Great Britain to prevent the maritime insurance of consignments of opium or drugs destined for illicit purposes, and the Council decided to urge other countries to take similar steps. It was decided also to bring to the notice of all governments and of the Universal Postal Union the evidence available as to the extensive use of the post by illicit traffickers in morphine and other drugs with the Far East.

The question of this traffic also came up in the Fifth Committee of the Assembly, where M. Veverka, delegate for Czecho-Slovakia, stated that there was no doubt that the quantity of drugs manufactured was considerably in excess of medical and scientific requirements; but until the Geneva Convention of 1925 came into operation effective control of the international traffic would be extremely difficult. M. Parra-Perez, the delegate for Venezuela, declared the production of narcotics at the present time to be from ten to twenty times in excess of what was required by medicine and science. Viscount Cecil also spoke of the seriousness of the situation and the need for ratifying the Geneva Convention, and Sir B. Mullick, delegate for India, gave statistics to show how well the Indian Government is fulfilling its duties in the matter of control. He said that steps had been taken to introduce an absolute prohibition of exports within a term of ten years—that is, by 1935—and that internal distribution was being gradually restricted in spite of the difficulties proceeding from the ingrained habits of the people.

The discussion is continuing in this Committee, and the matter will be brought in due course before the Assembly.

Epidemiological Intelligence.

Viscount Ishii, the representative of Japan on the League Council, reported to the Council on the work of the Health Committee. He said that the committee was not yet in a position to submit definite recommendations regarding the establishment of the proposed sanitary and epidemiological bureau on the West Coast of Africa, but an experiment is being undertaken by the inspector-general of the Algerian medical service in the shape of the collection and transmission of such epidemiological intelligence as is at present available in northern, western, and central Africa, and the results will be reported to the Health Committee at its session next month. Viscount Ishii also described the nature of the revision by the recent International Sanitary Conference in Paris of the international convention of 1912. The revised convention makes it incumbent on the signatory States to notify the International Office of Public Health in Paris of the appearance and progress of the more important epidemic diseases in their territories; in addition, information has to be given concerning the measures imposed on ships arriving from infected territory, the existence of rat-plague in ports, and the sanitary equipment of ports. The Japanese statesman spoke of the great utility of the work done by the epidemiological intelligence service of the League.

Intellectual Co-operation.

A statement was made to the Council by M. Briand on the work of the Committee on Intellectual Co-operation. He said that Madame Curie had compiled a report on inter-university relations, especially with regard to the award of scholarships to young students intending to engage in disinterested scientific study and research after obtaining their university degrees. At Madame Curie's suggestion a meeting of experts is to be summoned to help in co-ordinating this effort and to promote a fairer allocation of these scholarships in different fields of scientific activity, both in the exact sciences and the humanities. As regards the important problem of liaison between universities, university professors, and students, the Committee on Intellectual Co-operation reported that valuable results had been achieved by a recent meeting of representatives of the International Association of University Students. Another development along the lines of intellectual co-operation is an international museums office, to be established during the autumn. Proposals are also shortly to be submitted on certain natural extensions of copyright, such as *droit en suite*, which entitles the author to share in the surplus value which his work may fetch at public sales, and the *droit en respect*, in virtue of which any deliberate alteration of the text of a work by any person other than its author is prohibited. A further proposal is to create an international office of meteorology, which is considered a matter of some urgency. The Council of the League passed a resolution noting with satisfaction that the influence of intellectual co-operation is continually growing in the different countries, both members and non-members of the society of nations.

contiguous rivers. At one point the report drifts away from bald statement of examination results to note that proceedings against the sellers of the Sussex ground oats and of barley meal containing tapioca resulted in conviction of the sellers; though why they did, or why the sellers of sharps containing rice husks escaped, we are not told. The establishment of the Irish Free State has rendered it necessary to sample consignments of beer from that country. This, we gather, is not for the purpose of ensuring that the Guinness absorbed in Britain is of the right potency and flavour, but in order that the Government may get the full duty. One hundred and fifty-nine samples of matches were examined, but no white phosphorus was found. Of parcel post packages coming into this country 2,200 samples were sent to the laboratory; but the report does not tell us how many of these contained dutiable perfumery, essential oils, and so on. The Public Record Office submitted to the laboratory a silk tassel from a sixteenth-century seal which had become brittle, but the Government chemist could only report that there was no clear evidence of destruction by organisms. However, washings sent from the cleaning of the Leighton frescoes at the Victoria and Albert Museum showed that none of the original pigment was removed in the treatment, so that these works of art will no doubt be preserved for us. Amongst the papers communicated by members of the laboratory staff, the only one of medical interest concerned deposits of arsenic and copper on eating apples.

CARE OF THE DEAF.

FOR some fifteen years there has been a small society working in the interests of the deaf. Recently it has been reorganized under the title of "The National Institute for the Deaf." The president of the new society is Lord Charnwood, a man who has made his mark for judgement in other spheres. Besides a good working executive committee there is a strong medical committee, which combines practising aurists, school medical officers, and publicists. Deafness is a terrible affliction. The loss of hearing may not be so severe a handicap as the loss of sight, yet there can be little doubt that deafness causes more unhappiness than does blindness. Perhaps this is because our sympathies are more attune to the plight of the blind than that of the deaf. It is so difficult to communicate with the deaf; with the blind it is easy. Much has been done for the deaf in this country, but there is much more to be done before these sufferers get their fair chance in life. Under the Education Acts there are schools for the deaf up to the age of 16 years; they give splendid aid in training the youthful deaf, and in many cases following them up afterwards. But for the most part, after the age of 16 the main dependence must be upon voluntary societies. There are some sixty of these in the country, and if they were adequately supported much could be done for the youthful deaf and for those whose deafness is of later years. No less than 600 deaf and partly deaf leave the schools each year; and, excluding the partially hearing, there are some 40,000 deaf-born persons in the country. It is clear, therefore, that there is room for organization of the work of directing the deaf into suitable spheres of work. There are, besides, records of some 4,500 deaf in the workhouses and a couple of thousand in mental hospitals. The major part of these cases are due to old age, but there are some able-bodied amongst them for whom work should be found. The committee of the new institute, which has its offices at 67, Frith Street, Soho Square, London, W.1, has set itself two initial tasks: the first is to compile a list of trusts and charities for the deaf; by this research it has already discovered an almost unknown trust with an income of nearly £1,000 a year. The second, and more important, task is an inquiry into the industrial conditions of the deaf in four or five distinctive areas. Such an inquiry will show in what branches of work the deaf most easily succeed; and in this way much economy of effort may be obtained in educational direction. The name "National Institute for the Deaf" is a reminder of the older National Institute for the Blind, and if the new institute for the deaf should attain a success such as has attended the labour of that for the blind, the organizers of the new society will deserve well of the community. But to achieve success there must be funds; the appeal is made for £2,000 a year for the carrying through of the initial investigations cited above; at present only £650 a year is assured.

MEMORANDUMS ON CANCER.

IN August, 1923, the Ministry of Health issued for the guidance of local authorities a short general memorandum on cancer (Circular 426), summarizing in non-technical terms our knowledge regarding etiology and incidence, and offering suggestions for the guidance of public opinion. This was followed in March, 1924, by a memorandum on the effects of radium and x rays upon normal and cancerous tissues (Circular 476). Further memorandums appeared in May and July of the same year, the one relating to cancer of the breast and the results of surgical operation for that condition (Circular 496), and the other reviewing the main lines which experimental cancer research had followed in recent years, and the broad conclusions, negative as well as positive, which seemed to be deducible (Circular 516). The responsibility for these pronouncements, of which notices appeared in the JOURNAL on their publication, was undertaken by the Departmental Committee on Cancer appointed by the Minister of Health, with Sir George Newman as chairman. A further memorandum on cancer of the breast is being issued this week.[1] This supplements the information already given by incorporating the additional and more exact data which the committee has since obtained. The statements in the memorandum of May, 1924, based mainly on an examination of the literature, have been put to the practical test of several following-up inquiries by a subcommittee of medical officers of health. These investigations have established the previous conclusions of the committee on a firmer basis of fact, and demonstrate that the results of early complete operation are even better, in terms of subsequent healthy life, than had been revealed by the literature. We hope to refer again in more detail to this brief but authoritative summary of the position in regard to cancer of the breast.

THE ROYAL SANITARY INSTITUTE.

TO commemorate its recent Jubilee and London Congress, over which Mr. Neville Chamberlain presided, the Royal Sanitary Institute has issued a retrospect of its history, compiled by Dr. Louis C. Parkes, one of the vice-presidents. The historical portion of the book is very complete, beginning with the early efforts of Dr. Lory Marsh and the few members of the first committee who took the trouble to attend meetings; tracing the extraordinary progress made in the face of financial difficulties; recording the incorporation of the Parkes Museum with the institute in 1883; describing the institute as it is to-day; and reproducing photographs of many eminent men who aided in its promotion and objects. At the end of the volume are special articles recording the sanitary progress of the last fifty years from the medical, sanitary engineering, architectural, and other aspects. Professor Bostock Hill, chairman of the council of the institute, describes the

[1] Ministry of Health. Memorandum on Cancer of the Breast (Circular 716). 1926. London: H.M. Stationery Office. 1d. net.

blessed with worldly competence, we know that they also need provision for hospital treatment, especially in isolated towns. But those who can afford to pay for treatment must, of course, do so. Their fees must be part of the hospital revenue, and they ought to pay not less than their attention costs the hospital. This is bare justice to those who subscribe to hospital funds, which are intended to cover treatment of those who cannot pay, and not treatment of those who can. The effect of proper management in this respect will keep down the daily cost per patient, which I find in some places reaches an abnormally high figure. A hospital, to be successful, must be managed with all those business instincts which one applies to one's own affairs, for in no other way can it be successful and serve the purpose for which it is established." Following the ceremony the Administrator was entertained at a public luncheon, where his health was proposed by Mr. W. M. Luscombe, M.P.C.

Professor Jolly.

During the bicentenary celebrations of the founding of its medical faculty the University of Edinburgh conferred the honorary degree of LL.D. on Professor W. A. T. Jolly, dean of the Faculty of Medicine of the University of Capetown. By so doing the University of Edinburgh has done the younger university a signal honour. It is a fitting reward for consistently good work, not only in the field of research, but also in the organization of medical teaching. Ever since his appointment to the chair of physiology in 1911 Professor Jolly has thrown himself heart and soul into the task of building up the medical faculty, and it is due in no small measure to his energy and enthusiasm that the School of Medicine to-day rests on a sure foundation. Professor Jolly, who graduated M.B., Ch.B. at the University of Edinburgh in 1906, was lecturer in experimental physiology under Professor Sir E. Sharpey-Schafer when appointed to the chair of physiology at Capetown in 1911. He acted as chairman of the Medical Committee of the South African College, and, on its incorporation with the University of Capetown, became dean of the Faculty of Medicine. Professor Jolly is a member of the Royal Society of South Africa, and is its honorary secretary. He is a past-president of the Cape of Good Hope (Western) Branch of the British Medical Association, and continues to take a close interest in all its affairs, being a member of council at the present time. Professor Jolly is a universal favourite both with colleagues and students, and the news of the honour awarded by his Alma Mater gave very real pleasure to a wide circle of friends and colleagues.

Scotland.

James Mackenzie Institute for Clinical Research, St. Andrews.

The syllabus of work for the winter session of 1926 at the James Mackenzie Institute for Clinical Research includes meetings on Tuesdays for medical discussions and clinical meetings on Fridays. The subjects dealt with on the Tuesday afternoons will be found in our Diary, published weekly in the SUPPLEMENT. On October 5th the introductory address will be given by the honorary director on the muscles of the heart, intestinal tract, iris, and ciliary body, the discussion being opened by Professor Waterston. The two following discussions will be introduced by the Regius Professors of Aberdeen (Physiology) and Cambridge (Medicine), who will deal with high blood pressure from the physiological and clinical aspects respectively. Professor John Shaw Dunn of Manchester will speak on October 26th about the disturbance of renal function in experimental nephritis, and on November 2nd Dr. R. Barclay Ness of Glasgow will discuss the difficulties in diagnosis and prognosis in chronic Bright's disease. The treatment of arteriosclerosis will be considered by the Regius Professor of Medicine at Aberdeen on November 9th, and Dr. Hector Cameron will describe some forms of acidosis in children on the following Tuesday. The three subsequent discussions will be introduced respectively by Professor Adam Patrick on diabetic coma, Mr. A. E. Maylard on the bearing of high blood pressure, albuminuria, and glycosuria on surgical operations, and Professor G. Lovell Gulland on these three conditions as affecting life insurance. Professor Murray Lyon will describe methods of influencing the blood pressure, on December 14th, and the present series will be closed on the following Tuesday by Major Walter Elliot, Parliamentary Under Secretary for Health, who will consider clinical research in its relation to the public health services. The syllabus of this course may be obtained from the secretary at the Institute.

Treatment of Venereal Diseases in Scotland.

A reprint has been published in pamphlet form of the chapter dealing with venereal diseases in the Annual Report of the Scottish Board of Health for 1925; it may be obtained through booksellers or from H.M. Stationery Office, price 2d. net. In addition to a description of these diseases, their diagnosis, treatment, and possible sequels, conveyed in simple language and intended to have a popular appeal, information is given about the working of the forty-five approved treatment centres in Scotland during last year, with a summary of returns of patients treated up to the end of May, 1925. The pamphlet is designed to impress upon the lay public the importance of early and continued treatment of venereal diseases, to assist the general practitioner in diagnosis and treatment, and to indicate when he should have recourse to the public services. It is stated that during the year under review 25,243 cases were treated, as compared with 23,153 in the previous year, the number of new cases having risen from 12,316 to 13,011. It is believed that there is a progressive decrease in the incidence of syphilis in Scotland; there is also evidence that the serious nature of venereal diseases is becoming increasingly recognized. The percentage of patients abandoning treatment before the completion of the first course was 26, and of those finishing the first course, but before tests to establish the absence of disease, 23. Propaganda work was carried on by some local authorities, but the bulk of it was performed by the Scottish Committee of the British Social Hygiene Council.

New Edinburgh Venereal Disease Clinic.

The Public Health Committee of the Edinburgh Corporation has opened a new Seamen's Dispensary at Leith. This is intended to provide extended facilities for the diagnosis and treatment of male patients suffering from venereal disease at the Port of Leith. The dispensary will be open daily from 9.30 to 1, and from 3 to 8.30 p.m., for routine treatment, and a medical officer will be in attendance during the forenoons of Tuesday, Wednesday, Thursday, and Saturday, as well as on Monday and Thursday evenings. Routine treatment will be continued as before at the chief centre in the Royal Infirmary of Edinburgh.

Public Health Bacteriological Examinations in Edinburgh.

The public health authority in Edinburgh has recently made a new arrangement with regard to routine bacteriological examinations, which have hitherto been carried out at the Usher Institute of the university. From October 1st, 1926, such routine examinations will be carried out in part of the University New Buildings, Teviot Place, and the general arrangements will be much the same as in the past, the work being undertaken by the staff of the bacteriological department under the direction of the professor of bacteriology. Specimens sent by post on and after September 30th should be addressed to Bacteriological Department, University New Buildings, Teviot Place, Edinburgh. Specimens delivered by hand between 9 a.m. and 5 p.m. should be handed in at No. 2 Laboratory of the bacteriological department. After 5 p.m. on week-days or 1 p.m. on Saturdays, as well as on Sundays, specimens should be left at the Warder's House, University New Buildings. The present system of supplying containers and reporting results, both in writing or where necessary by telephone, will be continued. In cases of urgency, when an immediate examination of a specimen is required after the usual laboratory hours, application may be made by

Union of South Africa.

[FROM OUR CORRESPONDENT IN CAPETOWN.]

THE LATE DR. A. REITH FRASER.

THE funeral of the late Dr. A. Reith Fraser [of whom an obituary notice was published in our issue of July 31st] took place on July 12th at Plumstead Cemetery, Capetown, in the presence of a large gathering of friends and colleagues. The burial service at the graveside was conducted by Bishop W. T. Gaul, who, in the course of a brief but eloquent address, referred to the baffling mysteries of this life, exemplified by the taking away from our midst of a life so full of promise. Here was one, he said, who was engaged in scientific investigation the results of which might have been of inestimable benefit to mankind at large, yet it had pleased the Almighty to remove him while many others, living lives of apparently no value to the community, were left. The pall-bearers, chosen from among Dr. Fraser's personal friends, were Mr. T. Lindsay Sandes, F.R.C.S., Mr. Ph. A. Smuts, F.R.C.S.E., Mr. C. E. Jones-Phillipson, F.R.C.S.E., Dr. A. W. S. Sichel, Dr. W. P. Mulligan, Dr. R. Lance Impey, Dr. J. P. Duncan, and Dr. D. Herman Wessels. The Western Branch of the British Medical Association, of which Dr. Reith Fraser was so popular and efficient an honorary secretary, was represented by the President (Dr. D. H. Wessels), Vice-President (Mr. T. Lindsay Sandes), and many members. Among others present at the ceremony were: Dr. G. Watson Robertson, Government pathologist; Dr. F. C. Willmot, assistant medical officer of health for the Union; Dr. W. Darley Hartley, editor of the *South African Medical Record*; Dr. C. L. Leipoldt, editor of the *Medical Journal of South Africa*; Dr. W. P. Cooney, medical superintendent of the City Hospital; Dr. Hugh Smith, Dr. D. J. Wood, Dr. C. H. Krüger, Dr. H. M. Bosman, Dr. C. C. Carr, representing the Southern Peninsula Medical Society; Mr. W. A. M. Beard, representing the Royal Cape Golf Club; Mr. J. Bruce Cleghorn and Mr. Berrange, representing the Civil Service Club; and many others. The wreaths were numerous and beautiful, and at the conclusion of the interment the grave was one mass of flowers, testifying to the esteem and affection with which Dr. Fraser was regarded. Among the floral tributes was one from the President, Council, and members of the British Medical Association (Western Branch).

THE HEALTH OF THE CITY OF CAPETOWN.

The annual report of the medical officer of health for the City of Capetown (Dr. T. Shadick Higgins) for the twelve months ended June 30th, 1925, has just been published. The deaths registered numbered 3,945 (1,298 European, 2,646 coloured, and 1 of unknown race), which is equivalent to an uncorrected annual death rate of 9.27 per 1,000 for all classes (11.04 European and 30.36 non-European). Corrected for outward and inward transfers, the true European death rate is given as 10.15. The report states: "The European death rate (corrected for outward transfers) for the year is the lowest recorded since unification. There has been a steady improvement in the European death rate since 1913-14, but no such improvement has taken place in the non-European death rate. It has again to be recorded that for the year under review the non-European death rate (corrected for outward transfers) was three times as great as the European." The true European infant mortality rate, corrected for inward and outward transfers, was 70.91 per 1,000 births. The non-European rate, corrected for outward transfers only, was 173.95. These figures are the lowest on record with the exception of the year 1921-22. The marked disparity between the figures for European and non-European, both as regards the death rate and infant mortality rate, should be noted by those with little experience in health matters as affecting the coloured races. The births registered in Capetown for the year 1924-25 numbered 7,439 (2,538 European, 4,897 coloured, and 4 of unknown origin), corresponding to an uncorrected annual birth rate of 36.33 per 1,000 for all classes (21.58 European and 56.19 non-European). The true European birth rate, corrected for outward and inward transfers, was 21.22. The report states: "It will be seen from these figures that in spite of their higher death rate the natural increase of the non-European section of the Capetown population exceeded that of the European section by more than one thousand." The number of male births per 1,000 female births was 1,041 amongst Europeans and 1,063 amongst non-Europeans, as compared with 1,142 and 1,065 for the previous year. The percentage of illegitimate to total births was 5.8 amongst Europeans and 24.1 amongst non-Europeans. The number of stillbirths corrected for outward transfers was 432 (73 European and 359 non-European).

HOSPITAL BOARD REFORM.

A Draft Ordinance to amend the law relating to the constitution of the Cape Hospital Board is at present before the Provincial Council. Among the more important provisions are the reduction of the number of members of the board from thirty-six to eighteen, and the abolition of local committees of management. The board as at present constituted is, many consider, unwieldy, and there is little doubt that on account of its repeated procrastinations and unbusinesslike procedure from time to time it has almost entirely lost the confidence of the public. So unsatisfactory has the position become that a large section of the members of the Hospital Board itself, favouring a scheme of decentralization, are actively urging that the board should be abolished altogether, and the control of individual hospitals vested in local committees responsible directly to the Administrator. The Draft Ordinance, however, allows for a policy of centralization, but has applied the pruning knife very freely. Under its provisions the reduced board of eighteen members may appoint committees of three to assist in the management of institutions. At present local committees consist of fifteen members elected by the subscribers residing in an area. There are close upon 200 persons at the present time engaged in the administration of hospitals in the Cape peninsula, and their reduction to eighteen may seem unnecessarily drastic; however, the intention of the Administrator, it is stated, is to give a board so reduced an opportunity to make good before introducing amending legislation. The Draft Ordinance provides that of the eighteen members to constitute the Cape Hospital Board one-sixth shall be appointed by the administrator, one-sixth by the honorary visiting medical officers, one-third by the local authorities, and one-third by the registered contributors. Doubt exists as to whether the newly constituted board will be able to break away from the past and make a fresh start. At any rate, the general feeling seems to be in the direction of giving the Administrator's scheme a fair trial, although there are many who would prefer to see a board consisting of twenty-five members, with provision made for committees of five from its number to act as local committees of management.

NEW HOSPITAL AT BEAUFORT WEST.

On June 23rd, 1926, the ceremony of laying the foundation stone of the new hospital at Beaufort West was performed by the Administrator of the Cape Province (Mr. A. P. J. Fourie) in the presence of a large gathering, including many visitors from the outlying districts. The occasion was a great one for the town, the day being proclaimed a public holiday. Mr. A. R. Truter, chairman of the local hospital board, in introducing Mr. Fourie, gave a brief account of the efforts which had resulted in the building of the hospital, in which provision is made for sixteen beds at an approximate cost of £10,000. The building, which is already well advanced, occupies an eminently suitable site, exceeding 7 morgen in extent, granted by the town council. Voluntary effort has raised already a sum of £3,000 towards the cost of equipment; this is due in large measure to the co-operation of the Women's Hospital Board of Aid. Before laying the stone the Administrator was presented with a silver trowel by Mrs. Peter Weeber, to whose constant devotion to the interests of the hospital he referred in eulogistic terms. In the course of a speech dealing with the problem of hospital administration Mr. Fourie said: "Whilst the sick poor must be catered for at the expense of those who are

England and Wales.

ST. THOMAS'S HOSPITAL LADY ALMONER'S DEPARTMENT.

IN the report of the lady almoner's department of St. Thomas's Hospital for 1925 it is noted that the wage-earner can, from the age of 17, now "look forward to some allowance if ill, to a weekly sum if unemployed, to a medical adviser if sick, and later, if he marries, to some provision for his wife and family if he dies out of due time, or, if he and his wife live to 65, to a pension of £1 a week for life." However, as the report goes on to say, the benefits are on a limited scale, a number of people who still work for themselves or for relatives do not come under the insurance scheme, and patients of the professional or middle classes are outside all benefits. Thus there is still need for the help of the Samaritan Fund. Of the work of this fund and of the Northcote Trust the report gives a very full and interesting account, with illustrative cases of patients who have received benefit from the various departments. The activities cover a very wide range. Thus out-patients and casualties are visited at home. Under the Northcote Trust advice and assistance is given in carrying on the home while the breadwinner or housewife is in hospital. Convalescence and maternity are provided for. Assistance is given in the supply of surgical appliances and dentures. Tuberculosis and venereal disease cases are dealt with; and the Northcote Trust Hostel provides treatment for women and girls suffering from venereal disease or requiring social care and help. There is a note in the report of a special investigation now being undertaken by Dr. James Birley into the mental condition of some of the girls in the hostel, with a view to providing for their future training, occupation, or management. The lady almoner's department seems to be extremely well organized and complete.

ALNWICK INFIRMARY.

The new wing of Alnwick Infirmary was opened recently by the Duchess of Northumberland. The extension consists of a five-bed ward, a single-bed ward, and five bedrooms. Many special sinks, stoves, and other fittings have been presented by friends of the institution, the remainder of the expenses of furnishing being met by a fête held on the same day, at which a sum of over £650 was raised. Dr. Scott Purves, who has been associated with the infirmary for more than forty years, gave an account of the history of the institution, which was founded as a dispensary in 1815; five years later the work was transferred to another building, which, in 1849, was used as a cholera house. In 1850 its name was changed to the Alnwick Infirmary, although it still acted chiefly as a dispensary. A new infirmary was built in 1908, and further enlargements had become necessary owing to the great advances of surgery and the custom of performing operations in places specially equipped for the purpose rather than in private dwellings. The work of the hospital had been considerably increased by traffic accidents, and the accommodation for the nursing staff had hitherto been inadequate, but with the provision of the new wing a considerable advance had been made.

LIVERPOOL OPEN-AIR HOSPITAL FOR CHILDREN, LEASOWE.

At the Liverpool Open-air Hospital for Children at Leasowe, Cheshire, some 250 children suffering mainly from non-pulmonary tuberculosis are treated annually. But treatment for non-tuberculous crippling disease is being developed by means of out-patient clinics. In his report for 1925 the senior medical officer (Dr. T. Hartley Martin) says that 82.8 per cent. of all the patients admitted to the hospital were discharged with the disease quiescent; the least satisfactory cases were those of lupus. Artificial sunlight has been of use in the majority of cases treated, and has prevented relapse during the sunless months, but it has not helped to prevent the occurrence of lardaceous disease. Orthopaedic workshops have been established, so that splints and appliances can be made cheaply and expeditiously. It is hoped that the development of the out-patient clinics will tend to prevent relapses. The maintenance costs of the hospital are covered by grants from the Liverpool Corporation, various local authorities, the Ministry of Health, and the Board of Education. But capital expenditure is met by voluntary subscription, so that the management is appealing for £13,000 to wipe out the debt which remains on the capital account.

SPECTACLES FOR SCHOOL CHILDREN: NEEDLEWORK.

The London Central Spectacles Committee for aiding the local supply of spectacles to elementary school children has now been working for five years, and its latest report is satisfactory. Despite much unemployment during these last years there has been a steady improvement and less need for grants from the central committee to the local committees. There are twenty-three local committees; five years ago only seven of them managed to finance their local work, now no fewer than nineteen do so. Last year 25,555 spectacles were ordered for the children, and of these 89.8 per cent. were obtained. Arrangements have been made in some districts for the opticians to pay periodical visits to the schools to adjust the frames of spectacles and do minor repairs. This is a move in the right direction; it might be copied generally in school areas. The report quotes a reply received from the London County Council Education Committee on the subject of needlework.

"The Council's regulations at present prohibit the teaching of needlework by artificial light, except in cases in which the Council's medical officer is satisfied that the artificial light is sufficient for the teaching of needlework without involving risk of injury to the children's eyesight. Further, when on any occasion it is necessary to use artificial light during the time when instruction, according to the time-table, should be given in needlework, arrangements are made for an alternative lesson to be given. In order to avoid the necessity for too frequently departing from the time-table, head-teachers are required to make provision, where practicable, for instruction in needlework to be given before 3 p.m. on any given day. The Council has directed that special attention shall be drawn to these regulations, and that the conditions shall be borne in mind when time-tables are approved."

The honorary secretary of the London Spectacles Committee is Miss M. Frere, 20, Ladbroke Square, W.11.

LOCAL AUTHORITIES AND CANCER.

Dr. W. D. Champneys, assistant medical officer of health for Willesden, has reprinted his memorandum on cancer which was embodied in the report for 1925 of the Willesden Health Department. After summarizing present knowledge of cancer, Dr. Champneys indicates what, in his opinion, local authorities can do, under their existing legal powers, in the way of controlling the disease. He divides his proposals under the headings propaganda, diagnosis, treatment, and research. For propaganda in the medical profession he admits that local authorities should convene meetings of local medical practitioners to consider means for controlling cancer; that post-graduate lectures and demonstrations by recognized authorities should be given; and that local authorities should establish cancer clinics. Propaganda among the general public should be carried out by leaflets, posters, advertisements, and articles in the press, and by lectures. For diagnosis municipal clinics would be relied on. Dr. Champneys thinks that the minimum requirements of a clinic would be a staff consisting of a surgical specialist, a radiologist, and the necessary number of nurses; beds for the temporary admission of suspected patients; and an *x*-ray equipment. Diagnosis should be free to all persons applying for it, with perhaps a small charge for a barium meal. The treatment given to patients should include conveyance by ambulance to and from hospital; deep *x*-ray therapy at a hospital established or subsidized by the local council; surgical treatment at the same hospital. Research work should be carried out either in connexion with the work of the departmental committee of the Ministry of Health or as independent investigations, such as the inquiry into varieties of cancer made at Leeds. Dr. Champneys bases his propositions on the statements that cancer is steadily increasing in Willesden, as in the rest of England and Wales, and that, although the true nature and origin of the disease is unknown, enough is known about the conditions under which it occurs and the symptoms to which it gives rise to form the basis of a successful scheme

telephone, when one of the members of the department will make the necessary arrangements for carrying out the examination.

EDINBURGH ROYAL MATERNITY HOSPITAL.

A letter has been sent by the directors of the Edinburgh Royal Maternity and Simpson Memorial Hospital to the Edinburgh Town Council, making an appeal for financial aid to the institution. The letter points out that the working of the hospital for some years past has resulted in deficits which have had to be met by legacies and from a small reserve fund. In view of the very difficult time lying ahead, the directors state that they must appeal to the local authorities and child welfare centres of the districts from which many of the patients are drawn. They base this appeal chiefly on the fact that the hospital affords its benefits to a great number of poor women who cannot make payment of any kind; also on the fact that one of the chief functions of the hospital is to train nurses for taking up maternity service and child welfare positions all over the country.

Ireland.

TUBERCULOSIS MORTALITY IN DUBLIN.

MORTALITY from tuberculosis has been reduced considerably in recent years in Dublin. Earlier diagnosis, better treatment, and greater care exercised by the patients to prevent infection have contributed to this condition. The very high death rate, however, is sufficient to impress the necessity for still greater effort to stamp out the scourge. Dr. A. Trimble, chief tuberculosis officer for Belfast, issued recently a report of the condition in that city (see BRITISH MEDICAL JOURNAL, September 11th, p. 499). This stated that the rate had decreased by 30 per cent. in the last ten years and 68 per cent. in the last forty years, but the number of sufferers is still very high. In Dublin the mortality in the past ten years from tuberculosis has shown a greater decrease, being almost 50 per cent., as the following table shows:

	All forms.	Pulmonary.
1916	1,390	1,065
1917	1,371	1,058
1918	1,163	896
1919	999	738
1920	820	615
1921	749	583
1922	738	574
1923	666	507
1924	623	505
1925	664	515

There has been a steady decrease in the deaths, and in considering the figures it must be borne in mind the present scheme for the treatment of tuberculosis in the county borough of Dublin only commenced in 1913. At the Dublin Corporation Dispensary, West Charles Street, where, under the supervision of Dr. P. J. Murray, chief tuberculosis officer, much work is being done to check the disease among the poor, an *Irish Independent* representative was informed that the cases examined were 1,294 in 1925, and of these 539 suffered from pulmonary tuberculosis and 156 from surgical tuberculosis. The number of these cases occupying with family one, two, or three or more rooms was: one room, 746; two rooms, 319; three rooms or more, 229. This shows the effect of bad housing on the spread of the disease. Notifications of the disease showed between 1916 and 1923 a decrease, but in 1924 and 1925 there were sharp increases. The figures were:

1916	750	1921	527
1917	761	1922	511
1918	814	1923	505
1919	734	1924	701
1920	583	1925	690

No explanation of the increase in 1924 and 1925 was forthcoming, except the possible one that it might have been due to earlier and more correct diagnosis. It is well known that among the poorer class and in more congested areas the disease is more prevalent than in the outlying districts, and this is clearly demonstrated by the figures for last year, which show 1.45 deaths per 1,000 in the urban districts, compared with 1.98 in the city. Portions of the north side of the city are, and have always been, the most generally affected. A prominent medical practitioner who has considerable experience in treating tuberculosis attributed the decline in mortality to improved methods of treatment and the steps taken to prevent infection. Much, he said, yet required to be done to reach a minimum, and he thought it all came back to the housing conditions of the people. Better housing and better conditions of living generally were the fundamental grounds on which the best progress could be made. Housing conditions in Dublin were lamentably bad, and it was in the slum areas that the disease took its biggest toll.

CANCER IN DUBLIN AND THE IRISH FREE STATE.

So far as cancer is concerned, the statistics show that there has not been any appreciable change in mortality in the last ten years in Dublin. The figures are:

1915	434	1921	426
1916	423	1922	419
1917	381	1923	461
1918	451	1924	474
1919	438	1925	471
1920	420		

For the years 1915-24 the yearly average per 1,000 of the population of Dublin was 1.04, while for 1925 it was 1.07. The total deaths from cancer showed an increase—not, however, very pronounced—in the Saorstat in the last decade. The figures are:

1914	2,567	1920	2,588
1915	2,553	1921	2,609
1916	2,679	1922	2,525
1917	2,633	1923	2,730
1918	2,618	1924	2,903
1919	2,673		

TUBERCULOSIS AND THE MILK SUPPLY.

An effort to improve the health of Limerick is being made by the corporation, and at an early date a dispensary for the free treatment of tuberculous patients will be opened. In that connexion the comments on the need of a pure milk supply are of interest. In regard to the dispensary itself a doctor and nurse will be employed, the sick will be visited in their homes, and chronic cases will be sent to suitable sanatoriums. £1,500 will be provided by the Government for equipment, and a special rate has been levied by the corporation in anticipation of the scheme being adopted. In an interview the Mayor of Limerick stated that for a number of years the Government had been asking the corporation to formulate a scheme for the city, but the request had been declined because of the expenditure. The corporation, he said, conferred with the county council with a view to its co-operation in getting dispensaries opened in different parts of the county, and the real reason for doing nothing was because the corporation could not come to terms with the county council. The dispensary would, he added, be confined to the city, but it would be of great assistance if the county council co-operated. The medical profession in Limerick considered that very unsatisfactory provision was made for the distribution of milk in the city. In the county dirty vessels were frequently used, and there was no proper system to ensure the milk would be delivered free of dirt. Cases at the district courts showed how very careless the milk vendors were in this respect. Utensils and carts were discovered in a deplorable condition, and in many instances vessels were found without any covering to keep out the dust.

The prevalence of dirty milk and its connexion with consumption are referred to in a report on Purdystown Fever Hospital, Belfast, written by the Belfast medical superintendent of health. He states that during the past ten years the number of cowsheds has been reduced from 160 to 97, and the number of cows from 3,000 to 1,469, so that only a small proportion of the milk supply is now produced in the city, whereas formerly at least one-third was produced there. The officers have no authority to inspect dairies outside the city. He adds that 299 samples of fresh milk were specially examined for tuberculosis, and seventeen of these (5.7 per cent.) were found to be infected. In seventeen cases two were from milk inside the city boundary.

more after oral administration of the drug. . . ." Mr. Martindale then states that he has previously suggested the disuse of sodium tetraiodophenolphthalein as an intravenous injection, because in his opinion there will always be an element of risk with this chemical when used intravenously on human beings, however carefully it has been made and however carefully it is administered. He continues that if medical men still desire to use the substance in any form they will do so entirely on their own responsibility, and, moreover, in future he will not supply the drug for intravenous use.

Mr. Martindale is to be congratulated upon a very emphatic expression of his own conviction, and, coming from one of the greatest authorities in research work on pharmaceutical products, it is particularly significant.

Cholecystography is undoubtedly being widely practised in this country, and more especially in America, and the clinical and radiological investigations of affections of the bile passages have made rapid progress since its introduction. The opinion was expressed at Nottingham that it should become a standard method of investigation, but a little later the same speaker pointed out that very great care in technique was necessary to prevent reactions. Professor Graham stated that no death had been recorded following the injection, but Mr. Martindale tells us that the American literature abounds with references to toxic effects following its administration. Nearly all observers agree that reactions of a more or less severe degree occur in a certain percentage of cases, and various drugs have been advocated to counteract them. There is thus abundant evidence that there are very material dangers in what is, after all, only a diagnostic procedure.

I have used the iodine salt in about fifty cases, adopting the technique described by Graham. In a very substantial percentage of cases toxic reactions followed, varying in some from slight dizziness and nausea to repeated vomiting, a very appreciable fall in blood pressure, severe headache and collapse in others. In two cases, however, the symptoms became much more alarming. One patient became so ill that subsequent *x*-ray examination was deemed inadvisable, while the other towards the end of the administration suddenly became very ill, pulseless, and, in fact, one thought that she was going to die. She remained extremely ill for twenty-four hours in spite of most vigorous treatment, and for four days was as though recovering from a severe operation. Finally she left hospital, it being considered advisable to postpone operation. It is true that with the exception of this case no patient showed any untoward symptom on the day following the injection.

Alongside these cases, in all of which I have actually given the injection myself, a death has taken place at another hospital in this city. Following upon these experiences Mr. Martindale's letter came as no surprise. Apart altogether from the advantages and results of any test, it *must* be absolutely safe from a patient's point of view, and not until then can it be recognized as a routine method of diagnosis.

It appears to me, furthermore, that a most careful selection of patients has to be made, refraining particularly from employing cholecystography in elderly patients with a low blood pressure; but even then there remain patients who seem peculiarly intolerant to the drug.

Is it not probable that, just as in pyelography the use of sodium bromide has quite supplanted the irritant silver salts, we shall some day be furnished with a preparation free from any risk or even discomfort?—I am, etc.,

Birmingham, Sept. 4th. CYRIL A. RAISON.

SANATORIUM TREATMENT.

SIR,—In the JOURNAL of August 28th (p. 397) there appeared a review of a memoir on the influence of sanatorium and dispensary treatment and housing conditions on pulmonary tuberculosis, recently published in the *Annals of Eugenics*. My interest was aroused by the review, and I have now read the memoir.

I express no opinion as to whether the conclusions of the authors of the memoir will be confirmed by further investigation, or otherwise. But I would point out that their argument is invalidated by a most serious defect in the data, on which they have spent so much ingenuity and labour. There are other defects—for example, that 29.1 per cent. of the "sanatorium treated" cases were lost sight of, and 51.6 per cent. of those "otherwise treated"; that fourteen days in a sanatorium was held sufficient for a case to be classed as "sanatorium treated"; and that for a patient to be classed as under "regular" medical treatment at the dispensaries the criterion was "not less than four visits per year with a minimum of three months' treatment."

But the great defect to which I refer is the want of information as to the presence or absence in each case of sputum containing tubercle bacilli. On the fifth page of the memoir the following statement is made:

"It was found impracticable to use the presence or absence of tubercle bacilli in the sputum as more than an adjuvant in diagnosis, since the number of cases in which bacilli were sought for and found was relatively small. Thus the percentages of cases in which the diagnosis was thus confirmed were:

	L_1.	L_2.	L_3.
Males	6.1	13.1	19.0
Females	4.2	10.8	11.9

Investigation of county Down cases has shown me that among patients suffering from pulmonary tuberculosis who have survived for more than six months from the time when they first came under observation, there has been an enormous difference, as regards both survival and recovery of working power, between cases in which tubercle bacilli were found in the sputum and those in which, though sought for, they were not found. Hence it is unscientific to lump these two classes together without any indication of the relative proportions of each class in the various subsections tabulated in the memoir.

In any investigation of this kind, T.B.+ and T.B.− cases should be kept quite separate, and data which do not permit of this being done should be avoided.—I am, etc.,

JOHN R. GILLESPIE, M.A., M.D., D.P.H.,
Tuberculosis Medical Officer, County Down.

Knock, Belfast, Sept. 8th.

SIR,—Judging from your review of Dr. Stocks's work on sanatorium treatment, it appears that, if all other factors have been rightly evaluated, its chief worth is the knowledge it gives that sanatorium treatment as administered in the North of Ireland is unsuitable for the people who live there. In England nobody who had received sanatorium treatment for less than two months would have been included.

Another and a most important consideration will occur to everyone who has done general sanatorium work. This is that the Irish are, as a rule, the worst sanatorium patients we meet with.—I am, etc.,

August 29th. MÉDECIN POITRINAIRE.

HARVEY AND THE LANCASHIRE WITCHES.

SIR,—In your interesting article (August 14th, p. 311) on a Harveian Tercentenary you refer to Harvey's association with the trial of the four Lancashire witches in 1634, but it was not on Harvey's judgement alone that their fate was decided. Their story as it can be traced by documents preserved at the Record Office is interesting.

Throughout the seventeenth century belief in witchcraft was very general, and in the spring of 1634 a serious outbreak of that offence, as it then was, occurred in Lancashire.

A letter dated May 16th, 1634, written by Sir William Pelham of Brocklesby to a friend, says there had been discovered "a huge pack of witches in Lancashire wherein it is said 19 are condemned and at least 60 already discovered; there are divers of them of good ability and they have done much harm. It is suspected that they had had a hand in raising the great storm wherein his majesty was in so great danger at sea in Scotland."

The women examined by Harvey and others were the survivors of a batch of seven, three of whom had died in

for its prevention or cure in a great many cases. With no wish to damp enthusiasm, it may yet be pertinent to suggest that some estimates are desirable as to the cost of such a scheme.

THE MIDWIVES AND MATERNITY HOMES ACT (1926).

Our attention has been called to an omission in the summary of the provisions of the Midwives and Maternity Homes Act (1926) which appeared in our issue of August 14th last. Section 2, Subsection 2, of the new Act amends the wording of a subsection of Section 14 of the Midwives Act, 1918, relating to the payment of fees to medical practitioners called in to assist midwives in cases of emergency. The subsection now reads as follows: Subsection (2) of section fourteen of the Midwives Act, 1918 (which imposes a condition on the payment of a fee to a medical practitioner called in to assist a midwife in case of emergency), shall have effect as though at the end thereof there were added the words "and shall submit his claim within two months from the date on which he was called in." As Part I of the new Act comes into force at once, medical practitioners should remember, when called in to assist a midwife, that if they do not give notice within two months they may find that their claim is statute-barred.

Correspondence.

GROWTH AND DIET FOR BOYS AND GIRLS OF SCHOOL AGE.

SIR,—The work of the Medical Research Council on diets for boys during school age[1] is of the highest practical value to all who have the care of children, whether in the home or institution.

Dr. Corry Mann demonstrates the high value of milk, when added in sufficient quantities to "a basic diet of poor quality but adequate physiological value," to promote increased physical development. Boys who were having 1/4 pint of milk daily, as part of their basic diet, were found to gain, on an average, 1.84 inches and 3.85 lb. in the year.

Some of the lads were then given 1 pint of milk a day extra, with the result that they grew 2.63 inches, and gained 6.98 lb. in the year. Moreover, the increased rate of growth was maintained for the three years the experiment was carried out, the milk boys being 2.37 inches taller and 9.39 lb. heavier than the non-milk boys at the end of the three years. These valuable findings of Dr. Corry Mann add yet another stone to the building of the perfect man.

It is not claimed, of course, that milk is the only article of diet which produces and maintains growth. The boys who had 1¾ oz. butter were not far behind those who had 1 pint of milk. The boy daily supplied with 1/2 to 3/4 oz. of watercress weighed heavier, but did not grow more than the boy on the basic diet.

As a matter of interest, these results were compared with those of boys and girls (of the same age as those Dr. Corry Mann experimented with) who live under different conditions. His boys were under model conditions in an institution. These groups to be compared are in boarded-out homes in the country and in small branch homes. There are ten in each group. The observations cover a period of two years. One year's average is taken.

Group A.—Boys in boarded-out homes in country cottages gained an average of 2.33 inches and 6.65 lb. in a year.

Group B.—Girls under similar conditions to Group A, 2.32 inches and 7.05 lb.

Group C.—Girls in a small branch home, 2.30 inches and 7.15 lb.

Group D.—Girls in another small branch home, 2.14 inches and 6.70 lb.

In the boarded-out homes under review the children certainly do not have a pint of milk a day. Half a pint is what is aimed at. There are, however, more frequent suet puddings and fresh greens, such as lettuce. It has been noted in various reports that the boarded-out child tends to be tall, and the institution child stumpy. The child in the smaller branch home has, in one case, 1/4 pint of milk, and in the other, milk a little in excess of that quantity. They hold their own in height and weight with the milk-fed boy. No butter is used. But there is only wholemeal bread in both, and in one rolled oats every day. The boys in the model colony have white bread, and porridge three times a week.

It is impossible to attribute growth to any one particular article of food. Milk, butter, suet, porridge, wholemeal bread, and fresh greens all make a difference when added in sufficient quantities. There is another influence which cannot be measured, and that is the personal supervision during meals which, however carefully it is tried to be maintained, tends to break down in large institutional life.

In one home, where the average rate of growth among ten girls was 1.75 inches and 5.4 lb. in 1924, it was found to be increased to 2.85 inches and 8.90 lb. in 1925. At the close of 1924 butter took the place of margarine, and wholemeal bread only was substituted for white factory bread. A handful of "sun-maid" raisins was given to each child every day, and almost every day of the year fresh fruit was doled out. Here is a difference which for one year, at any rate, exceeds the pace for the milk-fed boy.

What we do learn, however, from these figures is, first, that we must reasonably expect the child from 7 to 14 to gain 2 inches and 6 lb. in one year; second, that if he is not doing this, the diet he is being reared upon is deficient; third, that growth can be stimulated and maintained by the addition of many articles. (I am not going into the question of what can be curtailed from the diet.) It is taken for granted that personal hygiene, oral cleanliness, physical culture, fresh air and sunlight, judicious clothing, with happy and contented environment, have all been seen to. If strict attention is paid to all these matters to do with the child's health, a taller and heavier race will be produced, even when the foundations have been badly laid by early neglect and injudicious feeding.—I am, etc.,

A. H. MACDONALD,
London, E.1, Sept. 13th. Chief Medical Officer, Dr. Barnardo's Homes.

[1] BRITISH MEDICAL JOURNAL, August 14th, 1926, p. 317.

THE PERIOD OF INFECTIVITY OF WHOOPING-COUGH.

SIR,—With the return of children to school in the near future an authoritative pronouncement is badly needed on this subject.

Medical officers of schools are in a dilemma. On the one hand they are told that infectivity of whooping-cough lasts "until two weeks after the last whoop," on the other that it ceases "four weeks from onset of catarrhal symptoms." Which is right? Recently a parent was given the first rule for his boy and the second for his girl, both of whom had had recent whooping-cough.

I believe medical officers of schools would welcome an authoritative pronouncement from a bacteriologist interested in Bordet's bacillus. Can Bordet's bacillus be isolated from the throat four weeks from the onset or not?

My own view is that, failing proof to the contrary, it is safer to exclude children until two weeks have elapsed since the last whoop. If the period of infectivity of four weeks only is regarded as correct, then a child may return to school with the whoop in full blast, for we all know that the whoop may not appear for three weeks or so after the child is suspect on account of a cough, etc. Again, a vaccine of a pure culture of Bordet's bacillus appears to me to act beneficially after the four weeks' period.—I am, etc.,

Malvern, Sept. 9th. A. C. DEVEREUX.

CHOLECYSTOGRAPHY.

SIR,—So much has been written and said recently regarding the advantages of cholecystography as a means of diagnosis in gall-bladder affections, that I think special attention should be drawn to a circular letter written by Mr. Martindale on August 9th.

As a preface to his letter he quotes a statement made by Professor Graham at the recent British Medical Association meeting to the effect that "Toxic reactions occurred in a certain number of cases after intravenous injection and

APPENDICITIS AND VEGETARIANISM.

SIR,—The increase of appendicitis during the present century has been attributed to the increased consumption of imported meat, both tinned and frozen, and the decreased consumption of vegetables containing a plentiful supply of cellulose.

If this theory were correct we would expect to find vegetarians immune from the disease. At the present time I have a case under my care of acute gangrenous appendicitis in a boy of 10, whose parents and himself have been life-long vegetarians.

I am interested to know if this case is an exception.—I am, etc.,

Birmingham, Aug. 25th. HAMILTON BAILEY, F.R.C.S.Eng.

GONGYLONEMA AND CANCER.

SIR,—The only reply to Professor Leiper's letter that seems to be necessary is the statement that my views on the synonymy of the various species of *Gongylonema* are based upon evidence which I have published in full. Professor Leiper, so far as I am aware, has not yet made public the evidence which leads him to differ from me.

As a zoologist, I have never ventured to express a personal opinion on the causation of cancer.—I am, etc.,

British Museum (Natural History), London, S.W.7, Sept. 11th. H. A. BAYLIS.

Obituary.

HERBERT WILLIAM PAGE, M.A., M.CHIR., F.R.C.S.,

Consulting Surgeon, St. Mary's Hospital.

WE regret to record the death of Mr. Herbert William Page, consulting surgeon to St. Mary's Hospital, which took place at Farnham on September 9th, after a long illness, in his 81st year.

He was the eldest son of William Bousfield Page, F.R.C.S., of Carlisle, and was born on December 22nd, 1845. He entered Edinburgh University in 1864, and subsequently went to Christ's College, Cambridge, where he graduated B.A. in 1868, M.B. in 1870, and M.A. in 1872; he became Master of Surgery in 1873, having obtained the Fellowship of the Royal College of Surgeons in 1871. He was a student at the London Hospital, and was house-surgeon to Sir Jonathan Hutchinson. Amongst his teachers were Sutton and Hughlings Jackson, from the latter of whom he derived his interest in neurology. He studied also at Vienna.

On the outbreak of the Franco-Prussian war, Page volunteered and joined the German army as assistant surgeon in the Hessian Division, serving at the Princess Alice Hospital at Darmstadt. When he returned to England he joined his father for a short time in practice at Carlisle; but in 1875 he was appointed surgical registrar at the London Hospital, and in the following year became assistant surgeon to St. Mary's Hospital. In 1881 he won the Boylston Medical Prize at Harvard University for his essay on "Injuries of the back, without apparent mechanical lesions, in their surgical and medico-legal aspects." A second edition was published in 1885 under the title "Injuries of the spine and spinal cord, without apparent mechanical lesions, and nervous shock in their surgical and medico-legal aspects."

From 1899 to 1907 Mr. Page served as a member of the Council of the Royal College of Surgeons of England, and was for eight years a member of the Court of Examiners of that body. He was also examiner in surgery at the Universities of Oxford, Cambridge, and Birmingham. He served as president of the Neurological Society, an unusual position for a surgeon. But the work in which he chiefly distinguished himself was as an expert in conditions arising from injuries in railway accidents. As surgeon to the London and North-Western and Great Western Railways he devoted much time to the investigation of symptoms produced by such injuries, and in his frequent appearances as witness on behalf of these companies he displayed great logical power and knowledge of medicine. He was a straightforward witness, forming his opinions carefully, and adhering to them strongly and clearly when formed. Moreover, his tact and courtesy when called upon to meet witnesses on the other side must frequently have saved his companies from unnecessary appearances in court. Page devoted much attention to the condition known as "railway spine," or "concussion of the spine"; and with no uncertain eye could recognize the cases in which cure was likely to be effected speedily by heavy damages. It was in cases such as these that he employed his powers of persuasion in the endeavour to prevent medical experts on opposite sides from lowering the prestige of the profession.

Page's highly original views on "railway spine" gave rise to great controversy in the medical profession, and were opposed by those who supported the opinions of Professor Erichsen. The views were embodied in the Boylston essay which gained the Harvard prize, and were subsequently elaborated in Page's book, *Railway Injuries*. It was as a result of his work that traumatic neurasthenia came to be better recognized; and though the war has greatly increased the stock of remedial measures, the curative effect of legal damages still remains.

Page's surgical work in connexion with injuries of the head has been described as unequalled among his contemporaries. It was conscientious and careful, and of great value to his students. His lectures were clearly reasoned and scholarly, if not dramatic. Of the assistance he gave in raising the medical school at St. Mary's to its high position there can be no doubt; no less certainly must Page be regarded as a pioneer among those experts in medico-legal matters for whom the school is now so famous. At the Annual Meeting of the British Medical Association held at his birthplace—Carlisle—in 1896 he was vice-president of the Section of Surgery; and at the Ryde meeting in 1881 he had acted as honorary secretary of the same Section.

As Page never sought to enter the limelight, his name is not connected to any extent with public affairs; but he was a justice of the peace for Surrey. His first wife was a daughter of the Rev. Christopher Parker of Skirwith Abbey, Cumberland. In 1905 he married Kathleen, daughter of Canon Houghton. He leaves two daughters by his first wife; and he is survived by all his brothers—Mr. Ernest Page, K.C., Recorder of Carlisle and Bencher of the Inner Temple; the Very Rev. Arnold Page, Dean of Peterborough; and Mr. Lawrence Page, until lately solicitor to the Great Western Railway Company.

S. A. POWELL, M.D.,

Formerly Professor of Medical Jurisprudence, Grant Medical College, Bombay.

DR. SAMUEL ARTHUR POWELL, O.B.E., V.D., died suddenly at Sutton on August 28th, aged 62. He had been in the Oriental Club, in his usual health, for some time on the previous afternoon. He was educated at Trinity College, Dublin, and at Belfast, and graduated as B.A. in the natural sciences tripos in 1885, and as M.B., M.Ch., and M.A.O. of the Royal University, Ireland, in 1887. After qualifying he was for many years a planter's doctor in the tea districts of Assam. In 1899 he went to South Africa in Lumsden's Horse, the corps raised in India, chiefly from among the planters, by Colonel Lumsden, for service in South Africa. He was mentioned in dispatches, received the Queen's medal with three clasps, and received a commission as honorary captain in the army. On his return to India he was appointed police surgeon of Bombay, and professor of medical jurisprudence and biology in the Grant Medical College, Bombay. He was also a justice of the peace for that city, a fellow and examiner of Bombay University, consulting physician to St. George's Hospital, Bombay, and inspector of lepers, Bombay; and held a commission as lieutenant-colonel in the Indian Defence Force, formerly Indian Volunteers. He had received the Indian Volunteer officer's decoration. During the great war he was commandant of the Byculla officers' hospital in Bombay, was mentioned in dispatches, and received the O.B.E. Retiring under the age limit a few years ago, he

gaol, and they had already been examined by Bishop Bridgeman of Chester as to their spiritual condition. The evidence given before the bishop of their intimate relations with the devil is amusing to read now, but it was a very serious matter in 1634.

The women were brought to London in charge of the under-sheriff of the county. A letter dated from Whitehall, June 29th, 1634, and addressed to Alexander Baker, Esq., and Sergeant Clowes, Esq., His Majesty's surgeons, directed them "to make choice of midwives to inspect and search the bodies of those women lately brought up by the sheriff of the county of Lancaster, indicted for witchcraft, wherein the midwives are to receive instructions from Mr. Dr. Harvey, the King's physician and themselves." This letter is signed by Henry Montagu, Earl of Manchester, Lord Privy Seal; Sir John Coke; and Sir Francis Windebank, who were the principal Secretaries of State, and is endorsed, "The prisoners are at the Shippe Taverne, Greenwich." In obedience to this letter the prisoners were examined, probably at Greenwich, and the following certificate was sent to the Council:

"July 2nd, 1634. Surgeon's Hall, Mugwell Street, London. That in humble obedience to the Council and by the direction of Mr. Dr. Harvey and in his presence, they have made diligent search and inspection on those women lately brought up from Lancaster and find as follows: On the bodies of Janet Hargraves, Frances Dicconson, and Mary Spencer nothing unnatural nor anything like a teat or mark. On the body of Mary Johnson they find two things which may be called teats; the first in shape like the teat of a bitch, but in their judgment nothing but the skin of the fundament drawn out as it will be after the piles on the application of leeches; the second is like the nipple or teat of a woman's breast, but of the same colour as the rest of the skin, without any hollowness or issue of any blood or juice to come from thence."

This certificate is signed by William Clowes and Alexander Baker, and by five other surgeons and the midwives, but is not signed by Harvey. Alexander Baker was Master of the Barber-Surgeons in 1622. William Clowes was Sergeant-Surgeon to the King, and Master of the Barber-Surgeons in 1626 and again in 1638. He was the son of William Clowes (1544-1603), Surgeon-General to Queen Elizabeth, and surgeon to St. Bartholomew's Hospital.

The certificate probably helped to liberate the women, but the evidence given against them was very unreliable and grotesque. Two of the chief witnesses were Edmund Robinson and his son Edmund, a boy of about 10 years of age. The boy had told some marvellous stories, but on July 10th, when examined before George Long, justice of the peace for Middlesex, made a recantation of his evidence, and said that he had told the tales about the women to excuse himself when he had been at play. The father was imprisoned, and there are several references to appeals for his release. I do not find any account of a formal trial in court of the women, and they were probably liberated soon after Harvey's examination. On July 4th, 1634, at a meeting of the Council at Whitehall, Robert Maudesley, the under-sheriff who brought up the witches from Lancaster, was discharged from further attendance, and it was ordered by the Lord Treasurer that he should be rewarded.

During the seventeenth century trials for witchcraft were very numerous. The last trial in England was in 1712, and the laws against witchcraft were repealed, 10 George II (1736).—I am, etc.,

London, N.W.3, Aug. 26th. H. A. CLOWES.

CAN BEACH BATHING BE MADE SAFER?

SIR,—The numerous bathing tragedies that occur around our coasts in the summer season raise the question whether the precautions taken are adequate to meet the risk of sudden and unaccountable drowning. The causes of drowning under the conditions of beach bathing may be set down in four categories.

1. Sudden loss of consciousness due to syncope or temporary heart failure.

2. Loss of consciousness due to an epileptic fit. In themselves these causes are not necessarily fatal when they occur on land, but in water, even of very moderate depth, drowning occurs owing to the helpless condition of the person. While these causes account for a few of the fatalities, there are two other causes which account for the vast majority—namely:

3. Cramp or painful rigid spasm of the voluntary muscles.

4. Sudden fright accompanied by complete loss of confidence, a sense of helplessness, and a paralysis of the will.

Three and four may be combined. Cramp does not seize the four limbs simultaneously: if this did occur the person would be as helpless as if attacked by the two first mentioned causes. As a rule one limb is seized, then there supervenes a depressing feeling of loss of confidence, and if there is no support near at hand to which the bather can cling he struggles in a more or less frenzied state and sinks. A similar mental state is often induced when a bather is swept out of his depth by the strong undertow of a breaker.

The moral of this is that beach bathing could be made much safer if provision were made so that bathers in temporary difficulties could easily cling to some support near at hand. The present precautions of prohibiting certain portions of a beach and of providing beach watchers and men in boats are insufficient. Drowning in these cases takes place with extreme rapidity. In less than five minutes a healthy vigorous person becomes a corpse. What is required is something to help the bather to help himself at the moment of temporary difficulty. A drowning man will clutch at a straw, and I suggest that this effort indicates the means by which beach bathing could be made more safe.

If a portion of a beach were taken and strong wooden posts were driven into the sand at suitable intervals apart, from low-water mark to high-water mark, a wire rope stretched across these posts and anchored beyond low-water mark and stretched tight to a fixture above high-water mark would provide a means whereby small hempen ropes with floats attached could be suspended to the water level. It may be said that some rash persons would not bathe in the area equipped for safe bathing, but while that may be so, the responsibility for disaster would not lie with the local authority which had made such provision.

It may surprise some to know the numbers drowned yearly while bathing. The Registrar-General reports that the number of deaths from drowning was as follows:

	Males.	Females.
1917	231	9
1918	153	19
1919	177	16

It may be assumed that the majority of these persons were healthy vigorous individuals in the early or middle period of life. The cost of the suggested equipment is not great, certainly not great to those much advertised seaside resorts where thousands of pounds are spent on questionable amusements.

Beach bathing is a healthy and joyous recreation, and any suggestion to lessen the annual toll of heart-breaking tragedies should be welcomed.—I am, etc.,

September 1st. NEPTUNE.

PUERPERAL FEVER AND PUERPERAL PYREXIA.

SIR,—I wonder if practitioners fully realize the amount of work which is imposed upon them by the recent Order relating to the above conditions. Not only are they required to notify the case, but they may also have to furnish a complete report on the condition of the patient prior to the confinement, the names of those who have made vaginal examinations, the clinical course of the labour or miscarriage, amount and character of the lochia, copy of temperature chart, etc., and all for 2s. 6d., less the cost of postage—that is, 2s. 4½d. To be sure that the case is notifiable some reliable person must take the temperature during a period of twenty-four hours.

Although I am all in favour of doing all that can be done to ascertain the cause of puerperal fever or pyrexia, I do not think the doctors should be called upon—nay, compelled—to give so much time and skill for the ridiculous fee of 2s. 6d. As the necessary report is to be so full I suggest 7s. 6d. as being the least that should be paid. I have personally no financial interest in the matter as I have ceased to take midwifery cases.—I am, etc.,

Plymstock, Sept. 4th. S. NOY SCOTT.

Medical News.

THE next international congress of surgery will be held at Warsaw in July, 1929, under the presidency of Professor Hartmann of Paris.

THE new baths at Leamington Spa will be opened on Saturday, October 9th, by Sir H. Kingsley Wood, M.P., Parliamentary Secretary, Ministry of Health. The ceremony will take place in the Royal Pump Room at 3 o'clock.

THE opening ceremony of the winter session at King's College Hospital Medical School (University of London) will be held on Friday, October 1st, at 2.30 p.m. The introductory address will be given by Sir Humphry Rolleston, Bt., K.C.B., M.D., Regius Professor of Physic in the University of Cambridge. The annual dinner of past and present students will be held at 7 for 7.30 on the same day at the Criterion Restaurant, Piccadilly, W.1, with Dr. Frank H. Jacob in the chair.

THE inaugural address at the Westminster Hospital Medical School will be delivered on Friday, October 1st, at 3 p.m., by Sir Archibald E. Garrod, K.C.M.G., F.R.S., Regius Professor of Medicine in the University of Oxford. The proceedings will take place in the board room of the hospital, and tea and coffee will be served afterwards.

THE Association of Special Libraries and Information Bureaux will hold its third conference during the week-end September 24th to 27th at Balliol College, Oxford. Papers are to be given on various problems affecting the collection and distribution of information by experts, including Dr. de Vos Van Steenwijk, of the League of Nations, and Mr. Kaiser, of the Engineering Societies' Library, New York, who will speak on systematic indexing. The British Medical Association will be represented by its Intelligence Officer, Miss A. L. Lawrence, M.A., LL.B.

DURING and after the second week of October three series of clinical lectures illustrated by cases will be given at the Maudsley Hospital, Denmark Hill, S.E.5, at 2.30 p.m. On Mondays Dr. W. Moodie will lecture on the relations of mental disorder to physical conditions, on Wednesdays Dr. Edward Mapother on neurotic and psychotic syndromes, and on Fridays Dr. W. S. Dawson on mental symptoms and their genesis. In addition a discussion on cases in the Mental Hospital is held in the wards every Tuesday at 11.30; and monthly, on the last Friday of each month, at 4.30, at which a group of patients from one of the London County Council Mental Hospitals is shown. These lectures and discussions are open to medical practitioners without fee. Posts as clinical assistant can be obtained on application to the medical superintendent. The course of lectures and practical instruction for the diploma in psychological medicine will be held at the Maudsley Hospital, beginning in January next. The lectures and demonstrations are given in series, and either group can be attended separately. The fee for the course is ten guineas, or for a single series two guineas, payable to the Fellowship of Medicine, from which office (1, Wimpole Street, W.1) copies of the syllabus may be obtained.

THE lectures arranged by the British Institute of Philosophical Studies for the forthcoming session, beginning October 4th, include ten lectures on medical psychology by Dr. T. W. Mitchell and a course on general psychology by Professor C. W. Valentine. In the Lent term Dr. C. Delisle Burns will lecture on the philosophy of social life, and Professor J. S. Mackenzie on social values, and the Dean of St. Paul's has promised to give a course of six lectures on the philosophy of religion in the summer term. The syllabus of lectures can be had on application to the Director of the Institute, 88, Kingsway, W.C.2.

THE sixth French Congress of Industrial Chemistry will be held at Brussels from September 26th to 30th, under the presidency of Dr. Glibert, when questions of industrial hygiene will be discussed in the sixth section. Further information can be obtained from the General Secretary, 65, Rue du Canal, Brussels.

A COMPREHENSIVE course dealing with cancer will be held at Strasbourg from October 18th to November 6th, and will include practical work in the use of x rays, radium, and diathermy; the general principles of treatment; lectures on cancer affecting different parts of the body; and clinical demonstrations. The fee is 250 francs, and further information may be obtained from Dr. Gunsett, Hôpital Civil, Strasbourg.

A MEMORIAL tablet has recently been placed on the house in the Luisenstrasse, Berlin, formerly occupied by the Reichgesundheitsamt, where Koch discovered the tubercle bacillus.

COUNCIL meetings of the Medical Women's International Association were held in Prague on August 26th and 29th. The President, Lady Barrett, took the chair, and reports of the activities of the various national associations were presented by the respective national corresponding secretaries. The most recently formed association was that of Hungary; and Hungarian delegates attended the meetings for the first time, and presented an excellent report. In addition to the other business of the council, medical meetings were held at which the subjects of tuberculosis and pregnancy, and women as police surgeons were considered. Representatives from the Czecho-Slovakian Ministry of Health attended these and took a prominent part in the discussions, a full report of which will be published in the current number of the *Medical Women's International Journal*. The president gave a dinner on the night preceding the council meeting, at which she welcomed the Lord Mayor and other officials and delegates. The association was also fortunate in having been invited to hold all the meetings in the Old Town Hall. The Lord Mayor and town councillors received the delegates and entertained them at a luncheon party; and the State Railways and Ministry of Health arranged a full programme, granting facilities to visit various spas, hospitals, and institutions.

THE list of candidates for election to the Royal Infant Orphanage, Wanstead, E.11, is now open. Children of both sexes who have lost both parents or the father only, and who are under 7 years of age, are eligible and are received from all parts of the United Kingdom. Applications should be addressed to the secretary at the orphanage.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the BRITISH MEDICAL JOURNAL are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

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QUERIES AND ANSWERS.

DR. CHARLES LANE SANSOM (Port Health Office, Calcutta) writes in reply to "P. S. H." (JOURNAL, July 31st, p. 235), who asked for a method of killing fleas in his home: I was bothered with fleas in South Africa—tried sulphur and chlorine fumigation and other means, and failed until I used calcium hypochlorite. This was spread all round the rooms and brushed into the centre, and in a short time all the fleas disappeared.

X-RAY TREATMENT OF RINGWORM.

DR. H. HALDIN-DAVIS (London, W.) sends the following reply to the query by "T. E. R." in our last issue (p. 511): For the most part aluminium filters are used in the *x*-ray treatment of ringworm in America because there, owing, I understand, to the dryness of the atmosphere, the Sabouraud pastille does not work so well as it does here and on the continent of Europe. Here there is no need for filtered rays if the pastille be properly used. The difficulty is to judge the tint correctly under varying conditions of light. This difficulty is much lessened if a Lovibond tintometer be used; it is made by Lovibond of Salisbury, who are specialists in colorimetry. I have used it in over 700 cases without a mishap. I have never used filtered rays myself, but I understand that when they are employed the pastille is exposed to the filtered rays and brought to 4/5 tint B, as with unfiltered rays. In America they employ other methods of measurement of the dose, owing, as stated above, to the unreliability of the pastille.

set up as a consultant in Harley Street, and was consulting physician for tropical diseases to the Ministry of Pensions.

The above outline of Dr. Powell's career may be supplemented by extracts from an appreciation of his work and character sent us by a friend:

"Dick" Powell, he writes, was no doubt better known in India than in this country, but his brilliant qualities had won for him here also a high reputation for scientific skill, as well as the affection of a wide circle of friends. He had to an extraordinary degree the power of winning true and abiding friendships. In 1888 he sought a career in India as medical officer in North-West Cachar. There he saw an extraordinary diversity of practice, but he threw himself into the work with all the zest of his nature, and yet found time to attend to bacteriological studies which fascinated him. As a professor in Bombay he had the faculty of making his lectures very interesting, both by the originality of his treatment and by his eminently practical demonstrations, and his memory will always be cherished with great affection by his old students. He did valuable work also in the Senate of the University of Bombay, and his friends often recalled his witty and piquant speeches whenever he had to deal with obstructionists. His range of knowledge was extraordinary, and in India he carried out a far greater number of operations for cataract than most eye specialists could boast of. On one occasion he operated successfully on an elephant, and the great animal used afterwards, when he saw him, trot over and follow him like a dog. His principal achievements in medicine, however, consisted in a series of his observations in yaws, which resulted finally in the best description and definition of that disease that we possess. For one thing, he clearly differentiated the lesions of yaws from those of syphilis. When Schaudinn discovered the spirochaete of syphilis in 1905 Powell had his specimens examined for a similar organism, with positive findings, though Castellani's discovery of the organism found precedence in time. Powell showed that the invasion of syphilis had taken place as a subsequent infection in well defined cases of yaws. His medico-legal work in Bombay soon earned him not only distinction but popular fame, for in addition to his expert knowledge he added a keen insight into human nature and an intimate acquaintance with local conditions. One of the results of his observations was that it was not so much opium as alcohol and cannabis indica that caused crime and degeneracy in India. His papers at the Royal Society of Medicine and elsewhere were greatly appreciated, not only for the matter, but for the style. He might have acquired a bigger position in the world's eye but for his innate modesty; but all these things will not now matter to his friends, who will rather remember "Dick" Powell for that spirit of kindness which went so well with his unselfish and genial nature.

Mr. CECIL JOHN DAVENPORT, who died suddenly in Shanghai on September 4th, aged 63, was born in Adelaide, South Australia. He received his medical training at St. Bartholomew's Hospital, whence he obtained the diplomas M.R.C.S., L.R.C.P. in 1887, and the F.R.C.S.Eng. in 1889, in which year he went to China as a medical missionary of the London Missionary Society. He worked first in Chungking and later in Wuchang, and in 1905 was appointed medical superintendent of the Shantung Road Hospital, Shanghai, a large voluntary hospital for the Chinese. This post he held till his death, and under his superintendence the hospital extended its activities and improved in efficiency; it became also a training centre for doctors and nurses. Recently the hospital received £350,000 under the will of the late Mr. Henry Lester of Shanghai (JOURNAL, July 24th, p. 166), and it was hoped that Mr. Davenport's guidance and judgement might be given to the trustees in its administration. Mr. Davenport was a kindly man, with high Christian principles; his life was devoted to his work without desire for personal distinction, and his loss will be felt by all classes in the community where he lived. The value of his labours was recognized by the Chinese Government, which bestowed upon him a decoration, and he was a past president of the China Medical Missionary Association. He married in 1890 Miss Miles, who was before marriage Sister Martha at St. Bartholomew's Hospital. He is survived by his widow and three children, of whom one, Mr. R. C. Davenport, is an ophthalmic surgeon in London.

Dr. JOHN JONES GASPERINE, who died on August 13th, at the age of 36, as the result of a bathing accident at Long Island, in the United States, was born in Ireland and received his medical education at Edinburgh and St. Bartholomew's Hospital. He obtained the diplomas M.R.C.S., L.R.C.P. in 1916, the D.P.H. in 1921, and the D.P.M. in 1922. He served with the Royal Navy from 1914 to 1919, and had held the appointments of house-physician and house-surgeon at St. Bartholomew's Hospital, assistant pathologist at the London Lock Hospital, house-physician and house-surgeon at St. Andrew's Hospital, Dollis Hill, assistant medical officer to the London County Mental Hospitals, and medical superintendent of the Norwood Sanatorium, Woodbridge. At the time of his death he was attached to the Cunard Line as surgeon. He was a member of the British Medical Association and of the Medico-Psychological Society of Great Britain and Ireland. A colleague writes: Dr. Gasperine was a man of singular kindliness and charm. He had a quiet unassuming personality; his wide professional experience and knowledge of the world in general endowed him with a skill and wisdom more to be expected in a man of maturer years. He had made many friends on both sides of the Atlantic who will mourn his loss.

Dr. TOM BOWER FAWLEY of Hull, who died on August 22nd, received his medical education at Guy's Hospital and obtained the diplomas M.R.C.S., L.R.C.P. in 1902. After serving as assistant to Dr. A. Hawkyard of Leeds he started practice in Hull about twenty years ago, and was appointed visiting surgeon to the Hull and Sculcoates Dispensary. He built up a large practice among the industrial classes, by whom he was highly esteemed. He was much interested in music, had a fine tenor voice, and was an accomplished violinist. He was a member of the East York and North Lincoln Division of the British Medical Association.

The Services.

SURGEON REAR-ADMIRAL BEADNELL'S RETIREMENT.

THE brief announcement appeared among "Naval and Military Appointments" in the SUPPLEMENT last week that Surgeon Rear-Admiral Charles Marsh Beadnell, C.B., K.H.P., R.N., had been placed on the retired list at his own request. The notification appeared in the *London Gazette* of August 24th. At the time of his retirement Surgeon Rear-Admiral Beadnell was the senior of the six medical officers of that rank on the active list, having been promoted to it in February, 1922, while still in his 50th year. He entered the navy in 1896, and as surgeon of H.M.S. *Powerful* saw active service both during the Philippine war of 1898 and with the Naval Brigade in the South African war. For his work in the Boer war he was awarded eight years' special promotion to the rank of staff surgeon. In 1904 he was promoted fleet surgeon. During the first three years of the great war he served in H.M.S. *Shannon*, flagship of the Second Cruiser Squadron. In 1922 he was British representative of the Army and Naval Medical Departments at the International Congress of Surgeons held in Washington. In the following year he received the appointment of P.M.O. commanding the Royal Naval Hospital, Chatham, and naval member of the Medical Consultative Board of the Admiralty. He was created C.B. in 1924. His retirement, nearly six years before attaining the age limit for his rank, will facilitate the promotion of his juniors, but removes from the navy an active-minded and able medical officer with a fine record of service afloat and ashore.

DEATHS IN THE SERVICES.

Lieut.-Colonel William James Fraser, I.M.S., died of cholera at Raipur, Central Provinces, on August 19th, aged 45. He was born at Bennachie, Ceylon, the third son of the late John Fraser of Abbotsford, Ceylon, and of Bridge of Allan, and educated at Edinburgh, where he graduated as M.B. and Ch.B., with honours, in 1904; he also took the university diploma in tropical medicine and hygiene. Subsequently he took the F.R.C.S.Ed. in 1908, and the D.T.M.Liverp. in 1919. He entered the I.M.S. as lieutenant in February, 1906, and became lieutenant-colonel on August 1st, 1925. He served in the great war of 1914-18, and was mentioned in dispatches in the *London Gazette* of June 5th, 1919.